Whip Mix

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Contact Us

Select Your Furnace Series

PRO 200

PRO 100

FIRELITE

JELRUS

APOLLO II

PRO BURN 12

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Main Page

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Select Your Furnace Model

PRO 100

PRO 100 PRESS

PRO 100 PLUS

PRO 100 W/O JET

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What type of issue are you having?

Power

Temperature

Lift

Vacuum

Special Functions

Error List

Replacement Parts

Operation Manual

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What type of issue are you having?

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What type of issue are you having?

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Are there any lights on the display?

Yes

No

What kind of power problem are you experiencing?

There are black bars on the display

The table will not move

Please Check the Following:

- The power cord is fully inserted.
- The power switch is in the ON position.
- The circuit breaker is in the ON position.
- The furnace fuses are in working condition.

How to check your fuses

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To check your fuses you will need a flat head screw driver and a volt-ohm meter

- Remove the fuses from the back of the unit with the screw driver
- Set the meter to the audible continuity setting •)))
- Place a lead on each metal side of the fuse, if the meter beeps then the fuse is still good.
- 115 volt units use a 12 amp ceramic slow blow fuse P/N: **96016**
- 230 volt units use a 6.3 amp ceramic slow blow fuse P/N: **96017**
- Both part numbers come in a set of 2 fuses

If you have replaced the fuses and there is still no power, please contact Whip Mix

If the unit has black bars on the display then the furnace has a keyboard problem or it has lost the Kernel on the main board

To examine the keyboard you will need a Phillips screwdriver

- Lay the unit on its back and remove the six screws along the sides.
- Set the unit back up and slide the front panel forward.
- Disconnect the keyboard ribbon cable from the main board and inspect it for any damage.
- If the ribbon cable is damaged then the keyboard will need to be replaced. The keyboard is P/N: **96190**
- If the ribbon cable is in good condition then the problem is with the main board. It has lost the Kernel and will have to be either replaced or sent in for repair. In either case all memory will be lost.

Is the table open or closed?

OPEN

CLOSED

- First check incoming power to the unit. Is the power cable fully inserted? Is the power switch in the ON position?
- Remove the front panel by laying the unit on its back and removing the three screws on each side with a Phillips screw driver.
- Check the motor wiring. The purple wire should be on the left terminal and the black wire should be on the right terminal.
- Make sure the other end is firmly seated to J3 on the main board, remove the connector and confirm that the pins are straight.
- Verify that when running the motor up or down the corresponding LED on the main board is illuminated
- Attach a nine volt battery to the motor terminals, if the motor runs then the main board is bad, if not the motor is bad. The main board is P/N: **96082-PX** the motor is P/N: **96202**
- Check the motor readings by clicking HERE a reading of 99 means the motor is in the is fully opened or fully closed position. A reading of 0 means the motor is moving.
- If the motor is engaged and the table is not moving remove the back cover and make sure the set screws on the pulley are tight.

- Is the unit currently holding a vacuum? If so remove the vacuum.
- Check Motor Reading (99 or 0)
- Check the power cable connections (Does the furnace have power?)
- Using a 1/3” slotted screwdriver, turn the manual lift override bolt counter clockwise to bring the table down if in the fully up position or clockwise if in the fully down position.
- The muffle must have no vacuum for the lift to release the table.
- Remove the vacuum sensor hose at the sensor end to relieve the sensor. If the sensor reads a pressure above ambient the lift will not move.
- Check the vacuum valves with a nine-volt battery. Turn the furnace off. Remove the wires from the vacuum valves **(Caution – place the positive side of the battery on the coil terminal closest to the motor).** Place the nine-volt battery across the terminals of the vacuum valve and listen for the click of the plunger going up and down. If a plunger is stuck click HERE for the vacuum valve replacement section for instructions on replacement.
- Check the top sensor to make sure it is not engaged, if it is the furnace already thinks the table has moved up and the motor will not engage.
- Check the wires to the motor & their crimp lug connections.
- Check the motor connections to the main board. They should be placed firmly on the terminal. Pull the connector off to see if the pins are straight.
- Remove the wires from the terminals of the motor and replace with a nine-volt battery. If the motor begins to run, then the main board is bad if not the motor is bad.

Vacuum Plunger Replacement

1. Raise the table to the full up position, remove the keyboard and set it aside.

2. In the back left hand corner you will see two brass valves on a Pro Press 100 and three brass valves On a Pro 100. This is the valve assembly.

3. Remove the red and orange wires from the vacuum valve by pinching them with a pair of needle nose pliers and pulling them toward the air valve and away from the vacuum valve.

4. Remove the spring clip from the top of the valve, by gently spreading the metal tabs of the star shaped spring clip away from the center with a slotted (flat head) screwdriver and then slowly prying the clip up by placing the slotted screwdriver under the clip and twist-

5. Once you have removed the Spring Clip from the vacuum assembly, you can then remove the coil from the top of the valve housing.

6. Once the clip and coil are removed the post can then be screwed off the assembly using a pair of locking pliers or “Vise Grips”.

7. Remove the vacuum valve and clean it with alcohol and a cotton swab or replace with a new valve and reinsert into the assembly.

8. Slowly replace the post to the vacuum assembly. Screw down tightly using the locking pliers or “Vise Grips”.

9. Replace the coil and **C** shaped metal housing that fits around the coil to the post.

10. Replace the star shaped spring clip onto the top of the coil.

11. Reconnect the two wires (red and orange) to the vacuum valve and replace the keyboard.

12. Run a vacuum test to insure the valve is working properly.

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Motor Up Test

- Push the down arrow button to move the table to the fully opened position.
- Press the “Special Functions” button and scroll down to “Test Furnace”, press the next button.
- Scroll to “MTR Up Test” and press “Next”.
- The current position will be displayed and should be “99”
- As the motor moves it should read “0” and read “99” when it reaches the fully closed or fully open position.

Motor Down Test

- Push the up arrow button to move the table the fully closed position.
- Press the “Special Functions” button and scroll down to “Test Furnace”, press the “Next” button.
- Scroll to “MTR Dn Test” and press “Next”.
- The current position will be displayed and should be “99”
- As the motor moves it should read “0” and read “99” when it reaches the fully closed or fully open position.

Note: If the display does not read 99 when the lift is fully up or fully down then one of the lift limit switches is not working properly or is positioned wrong. If the table reads 0 at fully up = upper lift limit switch. If the table is down = Lower lift limit switch.

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Temperature Troubleshooting

Will not heat or takes to long to heat

Thermocouple Error

Muffle runway (Over fire)

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Muffle Resistance Verification

- Turn unit off and unplug power cord from outlet.
- Remove the top cover with a Phillips screwdriver.
- Using a volt-ohm meter set on the ohm (Ω) scale, place the leads on the two brass screws on the top of the muffle.
- For a 115 volt unit the resistance should be 11Ω ±2.
- For a 230 volt unit the resistance should be 38Ω ±4.
- If the muffle reads open or the reading is larger than should be then the muffle needs to be replaced. The muffle for a 115 volt unit is P/N: **96035**. The 230 volt muffle is P/N: **96031**
- If the resistance was correct and the unit is still having temperature issues then the heater relay will need to be replaced. The heater relay is P/N: **96060**.

Thermocouple Error

- When a thermocouple error occurs the heater is turned off.
- The furnace must be turned off and then turned on to reset this.
- After start up, press the “Special Functions” button and go to “Change Idle Temp” and press the “Next” button.
- Set the idle temp to 651°C and press “Next”.
- Press the “Run Program” button to display the actual idle temp.
- If the temperature rises and stops around 651°C then the unit needs to be calibrated. Contact Whip Mix for calibration.
- If the thermocouple error returns check the resistance of the thermocouple with a volt-ohm meter. This can be done by re-moving the top cover with a Phillips screw driver, unplugging the green connector and measuring across the two leads. Any reading below 1 Ω is good, anything higher and the thermocouple will have to be replaced. The P/N is **96312**.

If the furnace temperature is running away the most likely cause is an intermittent heater relay.

For the Pro 100 and Pro Plus the P/N is **96225**

For the Older Pro 100 W/O Jet, Pro Press and Firelite the P/N is **96060**

Lift Problems

The table is popping

The table will not move

The lift is noisy

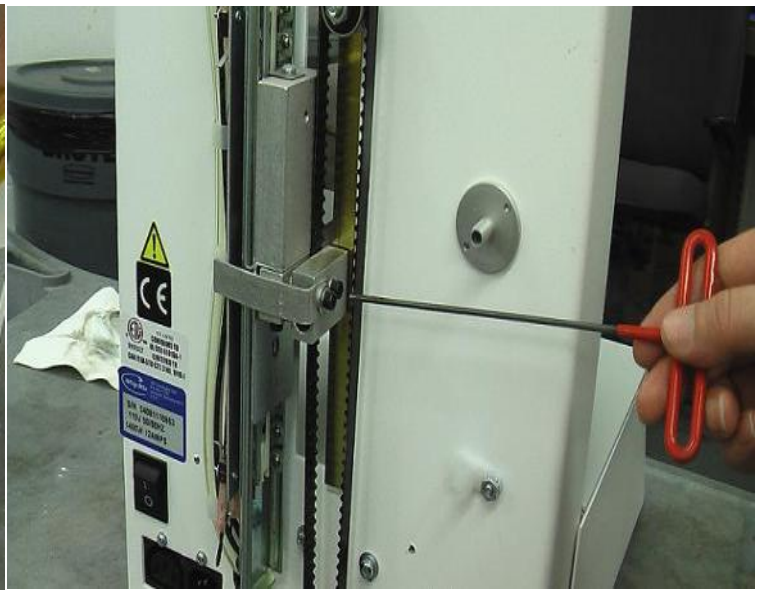
When is the table popping?

After opening when the vacuum is released

When it closes

- First try cleaning the table surface and O-ring with Windex or water.
- Make sure the table is level in both directions.
- Run another program to see if the table still pops after vacuum.
- If the table still pops try putting a light layer of dust on the O-ring. To do this turn the firing tray upside down and run it along the bottom of the casting where the O-ring is. Run another program to see if this still occurs.
- If the table still pops check the table surface for wear. Is there a black ring around it?
- A black ring is caused by the O-ring sticking to the table surface and both the O-ring and table will have to be replaced.
- The O-ring is P/N: **96042** and the table is P/N: **96025**
- If the table still pops after completing these steps, please contact Whip Mix for an RMA.

- Remove the back cover with a Phillips screw driver and set aside.
- Check that the (2) 5/64” hex set screws in the pulley are tight and that one of them is on the flat edge of the motor shaft.
- Confirm the (2) 9/64” hex screws in the block that is securing the belt to the lift assembly are tight.
- Is the belt loose? If so, loosen the four screws securing the motor, push down on the motor and retighten the screws.
- Is the belt worn, frayed or missing teeth? If so it will need to be replaced. The belt is P/N: **96021**



- Is the noise coming from the belt, the motor or the lift slide?
- If the noise is coming from the belt you can use some WD-40 on it and run the table up and down a few times.
- If it is the lift slide, then clean any dirt or debris from the lift slide and bearings with Q-tips. After cleaning, lubricate the lift with WD-40.
- If it is the motor then the internal components of the motor are wearing out and it should be replaced.
- The motor for a Pro 100 and Pro 100 Press is P/N: **96022**
- The motor for a Pro 100 Plus is P/N: **96202**

The Pro Series furnace contains several self-checks and error detection circuits. The following error messages may occur:

1. **“Start =Load code”** Furnace software has not been loaded. Generated by the kernel.

2. **“No code box”** Kernel tried to load software from the blue box but failed to find the blue box. Check if the blue box is attached. If it is, it may be damaged. Generated by the kernel.

3. **“COMPUTER FAILURE”** Error generated by the kernel indicating that CPU has encountered an internal error. This message is sometimes accompanied by another message explaining the nature of the error.

4**. “CPU clock fail”** CPU has detected an incorrect oscillator/clock signal. Could mean a bad oscillator, bad CPU (HC11), unstable power line, etc. Generated by the kernel.

5. **“COP watchdog”** A bad CPU, bad oscillator, unstable power line, bad fan switch, bad SSR, or software error could cause this error, which is generated by the kernel.

6. **“Illegal opcode”** A bad CPU, bad RAM, or error in software can cause this error, which is generated by the kernel.

7. **“Software IRQ”** This error is caused by an illegal interrupt request, usually generated by a software error, but could also mean a bad CPU, bad RAM, etc. Generated by the kernel.

8. **“Unknown error”** Unknown error. Can be caused by bad CPU, bad motherboard, or software error.

9**. “Connect meter!”** This error is generated only on the version of software supporting automatic temperature calibration. If this error occurs, check if the appropriate Omega thermometer is connected to the printer port through the RS232 (Calibration) adapter.

NEXT PAGE

10. **“*ABORTED*”** Program was aborted manually.

11. **“Check meter!”** This error is generated only on the version of software supporting automatic temperature calibration. This error indicates problems with the external temperature meter. Check if the meter set to the proper thermocouple type (R), and that it displays reasonable temperature. Restart the process.

12. **“Press Failed!!!”** Press did not move up and down properly during the press test that is run before each pressing program. Check all press and press sensor board wiring. Check the pressure supply line.

13. **“No Connection!!”** This error is generated only on the versions of software that support silver wire calibration. This error indicates that the silver wire is disconnected even before the calibration temperature was reached. Check how tightly silver wire is wrapped around the posts.

14. **“Thermo cpl error”** This error is generated if furnace reads temperature above 1250°C, if thermocouple is disconnected, or if an open thermocouple is detected.

15. **“No vacuum”** Furnace cannot pull vacuum. Check if vacuum pump is connected (both the power and the hose). Check vacuum valves. Sometimes this error indicates bad top limit switch.

16. **“Not enough vac”** Furnace cannot maintain vacuum or pull vacuum fast enough. Check for obvious leaks. Sometimes this error indicates bad top limit switch.

17. **“Receive Error”** Furnace cannot read programs from the red box. Check if the red box is connected. If it is, this error may indicate bad red box

18. **“Duplicate name”** You have tried to enter a program with the name that already exists.

NEXT PAGE

19. **“Program running”** Certain operations cannot be performed while a program is running.

20. **“Printer problem”** Problem has been encountered while trying to print. Check printer connection, printer status (on/off, paper, jam, etc.)

21. **“Vacuum not zero”** Furnace has detected vacuum in the chamber. Certain operations cannot be performed with the vacuum in the chamber.

22. **“Cal temp error”** Error has been encountered while trying to calibrate temperature. Check parameters and try again.

23. **“Transmit Error”** Cannot write programs to the red box. Check the presence of the red box. On older versions of software it is possible to receive this error even with a good red box. Try writing to it multiple times.

24. **“Check Programs”** Program memory area is corrupted.

25. **“Calibrate Temp”** Temperature calibration memory area is corrupted. Recalibrate temperature.

26. **“Calibrate Vacuum”** Vacuum calibration memory area is corrupted. Recalibrate vacuum.

27. **“Calibrate Lift”** Error was found in lift operation. Recalibrate lift. Sometimes this error indicates bad limit switch or corrupted memory.

28. **“Check Memory”** General memory is corrupted. Check furnace settings (idle temperature, night mode temperature, etc.)

Special Functions

1. Change idle temp-– factory set on 0
2. Set vacuum level—factory setting 71.
3. Temp in C or F– factory set on C
4. Program start delay
5. Nite mode temp-– factory set 150 C
6. Constant Vac pump-– factory no
7. Special cool – factory set 50
8. Capital letters– factory set no
9. Porcelain names
10. Calibrate low fusing-For porcelain 800c or below
11. Calibrate hi fusing-For porcelain 800c or above
12. Print form
13. Set time and date
14. Furnace to box
15. Box to Furnace

NEXT PAGE

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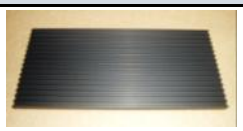
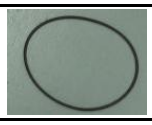
16 Test furnace

- Vacuum test
- Press test or Argon test
- Muffle test
- Motor up
- Motor down
- Muffle hours

17 Calibrate oven-customer options

- 300 Use inceram
- 310 Use timed press
- 314 Fast cool with vacuum on
- 315 Open cool with vacuum on
- 320 Wide or Narrow print
- 1357 Enable program password protection for programs 75 - 99
- 327 Print form Yes/No
- 350 Load code from blue smart box

18 Nite mode

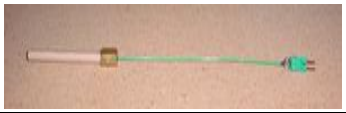
Part Number	Description
96003	#10360 COOLING TRAY 
96004	#10368 POWER CORD 115 Volt
96005	#10464 PUMP CORD EUROPEAN SHUKO
96006	#10369 POWER CORD PUMP 115V
96008	#10463 POWER CORD EUROPEAN SHU 230V
96011	#10225 RUBBER FEET LARGE PKG-4
96015	#10343 FIRING TRAY REGULAR
96016	#10367 FUSE 12 AMP PKG 2
96017	#10486 FUSE 6.3 AMP 230V
96025	#10239 LIFT TABLE
96026	#11246 LIMIT SWITCH
96027	#01021 LIMIT SWITCH BRACKET ASSY
96042	#10321 O RING VITON 
96052	#10305 PCB KEYBOARD SELECT ENCODER
96057	#10953 VACUUM PUMP MUFFLER

NEXT PAGE

Part Number	Description
96059	#01011 POWER SWITCH ASSEMBLY 4”
96061	#01007 SPEAKER ASSEMBLY W/ 3” WIRE
96067	#10052 VACUUM SENSOR
96085	#01056 DATA TRANSFER BOX RED
96086	#10058 BATTERY
96201	#10240 SPRING TABLE
96202	#10264 MOTOR REGULAR DUTY
96204	#10961 KNOB—BLACK NEW STYLE
96235	VACUUM HOSE 1/4” ID
96282	PCB FUSE HOLDER, FUSE / SOCKET ASSY
96302	#11316 PROGRAM LOGO MAGNET
96304	#10028 4-PIN HEADER
96306	#10151 4-PIN CONNECTOR
96307	#10086 1/8” NPT X 1/4” BARB

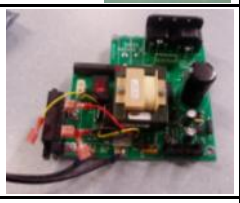
Part Number	Description
96021	#10233 LIFT DRIVE BELT
96022	#01022 LIFT DRIVE MOTOR W/PULLEY
96023	#10266 LIFT DRIVE PULLEY
96031	#01459 MUFFLE PRO 100 230V ‘06
96035	#01326 MUFFLE PRO 100 100V/115V
96041	#11448 OVERLAY PRO 100 ‘06
96050	#10263 PACKAGING PRO 90/100
96060	#10014 10 AMP SOLID STATE PUMP RELAY
96064	#01013 VAC HOSE ASSY PRESS/PRO 100
96069	#01009 VAC VALVE ASSY PRO 100
96070	#10290 RELEASE VALVE PLUNGER
96071	#10079 RELEASE VALVE FILTER
96073	#10301 VALVE VACUUM 2-WAY
96074	#10302 VALVE VACUUM 3-WAY

NEXT PAGE

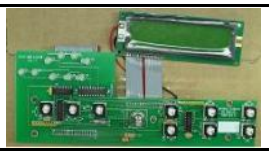
Part Number	Description
96076	#01003 POWER SUPPLY 115V VAC FURNACE
96082-PX	#01445-PX MAINBOARD PRO 100 (2006)
96088	#01143 POWER SUPPLY 230V
96144	#01057 SW UPGRADE BLUE VR3.00.01P1
96147	#10327 VALVE PLUNGER 3-WAY
96190	#01456 PCB KEY ASSY P100 W/LED SILV
96225	#10931 25 AMP SOLID STATE HEATER RELAY
96252	#01215 BEARING ASSEMBLY
96312	#11321 THERMOCOUPLE 

Part Number	Description
96001	#10318 CERAMIC PLUNGER ROD PKG 2
96012	#10371 FIRING TRAY PRESS INSERT
96013	#10370 FIRING TRAY PRESS W/O INSERT
96018	#10602 INVESTMENT RING FORMER 200G
96019	#10603 INVESTMENT RING FORMER 100G
96020	#10471 INVESTMENT RINGLINER PKG 10
96021	#10233 LIFT DRIVE BELT
96022	#01022 LIFT DRIVE MOTOR W/PULLEY
96023	#10266 LIFT DRIVE PULLEY
96032	#01042 MUFFLE PRO PRESS 100 115V
96036	#01051 MUFFLE PRO PRESS 100 230V
96040	#10546 PRESSING ROD FURNITURE
96043	#10244 OVERLAY PRO PRESS 100 BLACK

NEXT PAGE

Part Number	Description
960049	#10258 PACKAGING PRO PRESS 100
96060	#10014 10 AMP SOLID STATE RELAY
96064	#101013 VAC HOSE ASSY PRESS/PRP 100
96068	#01002 VAC VALVE ASSY PRESS/PRO 90
96070	#10290 RELEASE PLUNGER
96071	#10079 RELEASE VALVE FILTER
96072	#01345 VALVE AIR ASSY PRO PRESS 100
96073	#10301 VALVE VACUUM 2-WAY
96074	#10302 VALVE VACUUM 3-WAY
96076	#01003 POWER SUPPLY 115V VAC FURNAC 
96078	#01072 SILVER CALIBRATION KIT
96082-PR	#01445-PR MAIN BOARD PRESS
96088	#01143 POWER SUPPLY 230V
96108	UPGRADE BLUE VR2.06.04PR

NEXT PAGE

Part Number	Description
96147	#10327 VALVE PLUNGER 3-WAY
96184	#11351 THERMOCOUPLE PII SHT SHEATH
96197	#01237 PCB KEY ASSY PP/P W'LED 
96210	#10981 OVERLAY PRO PRESS WILD RICE
96234	#10462 SILVER WIRE .020IN D X 12"
96252	#01215 BEARING ASSEMBLY
96283	#11271 & #11218 QUICK CONNECT ASSY
96303	#10294 1/8" PUSH FITTING
96305	#10332 1/8IN TEFLON TUBE (2)
96309	#01344 PRESS REGULATOR
96315	DISPOSABLE PLUNGER 2 GRAM PKG 50
96320	DISPOSABLE PLUNGERS 5 GRAMS 18MM PKG 25
96325	DISPOSABLE PLUNGER 5 GRAM 16.5 MM PKG 25

Part Number	Description
96021	#10233 LIFT DRIVE BELT
96022	#01022 LIFT DRIVE MOTOR W/PULLEY
96023	#10266 LIFT DRIVE PULLEY
96034	#01059 MUFFLE PRO 100 115V
96039	#01063 MUFFLE PRO 100 230V
96044	#10243 OVERLAY PRO 100
96050	#10263 PACKAGING PRO 90/100
96060	#10014 10 AMP SOLID STATE PUMP RELAY
96064	#01013 VAC HOSE ASSY PRESS/PRO 100
96069	#01009 VAC VALVE ASSY PRO 100
96070	#10290 RELEASE VALVE PLUNGER
96071	#10079 RELEASE VALVE FILTER

NEXT PAGE

Part Number	Description
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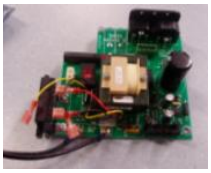
96074	#10302 VALVE VACUUM 3-WAY
96076	#01003 POWER SUPPLY 115V VAC FURNACE 
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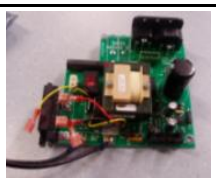
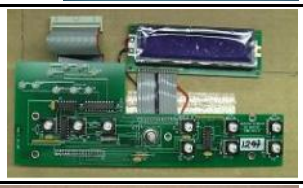
96082	#01445-P1 MAIN BOARD PRO 100
96088	#01143 POWER SUPPLY 230V 
96107	#01057 SW UPGRADE BLUE VER2.06.03P1
96147	#10327 VALVE PLUNGER 3-WAY
96184	#11351 THERMOCOUPLE PII SHT SHEATH
96197	#01237 PCB KEY ASSY PP/P W'LED
96209	#10980 OVERLAY PRO 100 WILD RICE
96234	#10462 SILVER WIRE .020IN D X 12"
96252	#01215 BEARING ASSEMBLY

Part Number	Description
96033	#01440 MUFFLE PRO 100 PLUS 230V
96038	#01406 MUFFLE PRO 100 PLUS 115V
96045	#01305 CHAIN DRIVE ASSEMBLY PRO PLUS
96049	#10258 PACKAGING PRO PRESS 100
96082-PL	#01445-PL MAIN BOARD PLUS
96090	#11193 COOLING FAN KIT
96225	#10931 25 AMP SOLID STATE HEATER RELAY
96250	#11352 OVERLAY PRO PLUS
96251	#01413 HUMPRHEY VALVE ASSEMBLY
96276	#01297 PCB KEYBOARD 
96312	#11321 THERMOCOUPLE
96313	UPGRADE BLUE VR1.00.05PL
96314	#01003-PL POWER SUPPLY 115V PRO PLU

more reasons. one source

Vacuum Troubleshooting

Vacuum Test

Vacuum Calibration

Pump Issues

Vacuum Valve Issues

more reasons. one source

Vacuum Test

1. Press the up ↑arrow button until the table is fully closed. You cannot start a vacuum test until the table is fully closed.
2. Press the “Special Functions” Button and turn the knob counter clockwise to “Test Furnace”. Press the “Next” Button.
3. Turn the knob clockwise to “Vacuum Test” and press “Next”. The vacuum test will begin.
4. There will be three numerical indicators on the screen, each has it’s own meaning:
The number to the far left is the vacuum count. That is the vacuum sensor reading.
The second in the middle is the centimeters or inches of mercury
The third is the current condition of the table 0 = moving, 99 = fully up or fully down.
5. Watch the numerical indicators as they rise.
6. Wait for the vacuum count to reach 240, at that point the Centimeters or Inches of Mercury should be 71cm or 29in. If the vacuum count goes above 240 or the vacuum does not shut off then the vacuum must be recalibrated.
7. The third value, the current table position, this should never change and stay at 99. If it is 0 then the limit switch bracket needs to be adjusted.
8. Once the vacuum has reached 240 press the “Next” Button. This will place the test in the hold position. Watch for changes in vacuum pressure and readings. The acceptable loss is 2 cm within six minutes.
9. Once the Test has been in “hold” for 6 minutes press the “Next” Button and end the test.
10. If the test passed then there is no need to calibrate. If the numbers ran over or stopped short of 71cm or 29in of mercury at 240 counts, then the vacuum must be re-calibrated. If the numbers dropped outside the acceptable loss range then the vacuum system has a leak and it must be repaired and then recalibrated. Click HERE for vacuum recalibration.

more reasons. one source

Vacuum Calibration

1. Make sure the vacuum pump is connected to the furnace.
2. Run a vacuum test to make sure no vacuum leaks exist. Click HERE for vacuum test.
3. To start the vacuum calibration press the “Special Functions” button.
4. Turn the select knob to “Calibrate Oven”, press the “Next” button.
5. Turn the select knob to password “135”, press the “Next” button.
6. Turn the select knob to “Cal High Vacuum”, press the “Next” button.
7. Turn the select knob to “Yes”, press the “Next” button
8. The vacuum will begin to rise. When full vacuum is reached check the number to left and press the “Next” button.

The following sensor counts (Number to the Left) equal the setting listed below:

240 = 710

243 = 720

245 = 730

247 = 740

250 = 750

9. Turn the select knob to the desired amount and press the “Next” button.
10. Turn the select knob to select the desired furnace vacuum setting (71 = factory setting) and press the “Next” button.

more reasons. one source

Pump does not turn on

1.Plug the pump **directly into the wall**. If the pump is running and pulls a vacuum then the pump is probably fine and the furnace must now be looked to as the source of the problem.

2. If the furnace is on, turn it off.

3. Turn the furnace on and listen for the pump to turn on during the initial self-test. If the pump turns on during the self-test then there should be no problem with the pump or the circuit boards.

4. Press the up arrow button to put the table in the fully up position. Press the “Special Functions” button. Turn the select knob to select “Test Furnace”. Press the next button. Turn the select knob to “Vacuum Test”.

5. Press “Next”. If the vacuum test begins and the pump starts to pull a vacuum then the upper limit switch in the back of the furnace is fine, if the furnace does not pull vacuum then check to see if the limit switch is actuated or broken.

6. Run motor down test - press Special Functions. Turn the knob to motor down test. Does the lift fully open and do the numbers on the right side of the screen read 0 or 99? 99 = fully open or fully closed. 0 = lift moving in either direction.

7. Run the motor up test - press Special Functions. Turn the knob to motor up test. Does the lift fully close the table? Do the numbers to the far right of the screen = 0 or 99? 99 = fully open or fully closed. 0 = lift moving

NEXT PAGE

8. If the lift is fully up, then look at the lift switches on the back of the furnace at-attached to the top and bottom of the lift guide. Is the upper limit switch closed?

9. If it is then using a volt-ohm meter, see if it is engaged (it should not have continuity). If it does then re-align the arm and the lift switch. If it still has continuity then manually close the switch to ensure good contact. If the switch still has continuity then replace the limit switch.

10. Press the “Change Program” button, turn the knob to select “look at a program”, press the “Next” button. Look at the programs that are supposed to have a vacuum and see if the settings are correct for the program to engage the vacuum pump. If they are, look at the vacuum pump to see if it will pull at least 69cm of vacuum.

Pump does not turn on during self-test

1. Check to see if the pump is plugged securely into the furnace.
2. Remove the chassis cover.

3. Looking toward the back of the furnace find the “pump” led on the power sup-ply (located at the back of the furnace under the motor).

4. Is the “Pump” LED on the power supply illuminated when the pump is run?
If it is the power supply pump relay is bad and the power board must be replaced.
If it is not the main board needs to be replaced.

more reasons. one source

Vacuum Valve Troubleshooting

1. Remove the keyboard leaving the gray data cable in tact.

2. Run a vacuum test. During the vacuum test, use a volt-ohm meter to check the voltage on the air valve when the vacuum is released.

3. Place the negative (Black) lead of the volt-ohm meter on the bottom of R10 located near the printer port on the main board. The positive (Red) lead goes on the right terminal of the vacuum valve coil. The nominal voltage is .06 VDC failure occurs at 0vdc or any value greater than .1 VDC.

- Failure = bad main board Passing = bad valve or a bad coil

Select Item —> Test Furnace —> Select Item —> Vacuum Test

Vacuum Test Hold —> 240 71cm 99

Vacuum Error

What is the vacuum level set at? Is the setting **lower** than the desired vacuum level? Press the “special functions” button, select “vacuum level”, and press the “next” button to display the vacuum level.

Run a vacuum test – Does the vacuum pump turn on? If it does not then click HERE.

Does the vacuum level reach at least **71 cm** or **28 in**.? This is the number displayed in the middle of the screen when a vacuum test is run. If it does not, then the pump is weak or there is a significant vacuum leak.

Is the maximum value for the pump less than the set level on the furnace?

If you are not sure replace the current pump with another and run a vacuum test. If the original vacuum pump was bad replace it with a higher capacity pump.

more reasons. one source

Temperature Troubleshooting

No heat or it takes to long to heat

Thermocouple Error

Muffle runway (Over fire)

Muffle Resistance Verification

- Turn unit off and unplug power cord from outlet.
- Remove the top cover with a Phillips screwdriver.
- Using a volt-ohm meter set on the ohm (Ω) scale, place the leads on the two brass screws on the top of the muffle.
- For a 115 volt unit the resistance should be 14Ω ±2.
- For a 230 volt unit the resistance should be 42Ω ±4.
- If the muffle reads open or the reading is larger than should be then the muffle needs to be replaced.
- The **Pro Press** muffle for a 115 volt unit is P/N: **96032** the 230 volt muffle is P/N: **96036**.
- The **Pro 100 W/O Jet** and **Firelite** muffle for a 115 volt unit is P/N: **96034** for a 230 volt unit the muffle is P/N: **96039**.
- If the resistance was correct and the unit is still having temperature issues then the heater relay will need to be replaced. The heater relay is P/N: **96060**.

Thermocouple Error

- When a thermocouple error occurs the heater is turned off.
- The furnace must be turned off and then turned on to reset this.
- After start up, press the “Special Functions” button and go to “Change Idle Temp” and press the “Next” button.
- Set the idle temp to 651°C and press “Next”.
- Press the “Run Program” button to display the actual idle temp.
- If the temperature rises and stops around 651°C then the unit needs to be calibrated. Contact Whip Mix for calibration.
- If the thermocouple error returns check the resistance of the thermocouple with a volt-ohm meter. This can be done by removing the top cover with a Phillips screw driver, unplugging the green connector and measuring across the two leads. Any reading below 1 ohm (Ω) is good, anything higher and the thermocouple will have to be replaced. The P/N is **96184**

more reasons. one source

Press Issues

Press Troubleshooting

Press Test and Calibration

Regulator Issues

more reasons. one source

Tools Needed:

Stopwatch — Retractable adjustable mirror — 5/32” Slotted screwdriver

#2 Phillips head screwdriver

1. Turn the power off.

2. Using a number two Phillips head screwdriver remove the six screws located at the back of the furnace that hold the upper chassis cover to the chassis.

3. Remove the upper chassis cover.

4. Turn the furnace on.

5. Make sure you have a pressurized air supply attached to the regulator. The pressure should be 4.25 Bars or 62 PSI

6. The regulator needs to read 4.25 Bars or 62 PSI If not, then see press regulator adjustment.

7. Press the “Special Functions” button and turn the knob counter clockwise to select “Test Furnace” then press the “Next” button

8. Turn the knob counter clockwise to select “Press Test”

9. Press the “Next” button

NEXT PAGE

10. Pressing the “Next” button will make the press plunger go up and down. The display will read the sensor counts. **Example:**

Press test Down **Press test Up**

Tp 2538 Bot 2629 **Tp 2538 Bot 2629**

11. Using the mirror, view the press plunger as it goes up and down.

12. Time the plunger as it moves up and down inside the muffle.

13. Press the “Next” button on the furnace keypad and the “start” button on a stopwatch at the same time. Record the time it takes the plunger to move from top to bottom.

14. Stop the timer when the plunger reaches the fully down position.

15. Repeat step 14 for the upstroke.

16. It should take the plunger 2 seconds to move from one end to the other:

17. To adjust the time it takes for the plunger to go up or down use a 5/32” slotted screwdriver. Rotate the down or up adjust screws (clockwise = slower) (counter clockwise = faster)

Note: The Press air hoses run crisscross to the press cylinder (Top to bottom and bottom to top)

18. Once the plunger has been adjusted to the appropriate speed, press the “Special Functions” button.

19. Turn the furnace off and replace the chassis top cover.

more reasons. one source

Typically "press failed" indicates that the air cylinder did not move when expected. This can be caused by a number of things listed below:

1. Air line not hooked up.

2. Air pressure set too low.

3. An obstruction preventing the cylinder from moving.

4. Possible water in the air line has damaged the press valve or cylinder.

5. Power regulation is not stable.

To troubleshoot this problem first remove the firing tray and any materials from the furnace.

1. Look to see if there is any condensation in the press regulator bowl on the back of the unit, if so there is a small release valve at the bottom of the bowl where you can remove the water. If there is condensation in the air line this will reduce the life of the valve and cylinder. If water is found in the regulator bowl it is possible that both the valve and cylinder must be replaced.

2. Next remove the top cover and verify that the air is coming into the press valve. Next turn the air pressure down to not alarm you when you disconnect one of the air lines leading to the air cylinder.

3. The air line can be removed by pushing on the green ring in and gently pulling the hose out.

NEXT PAGE

4. Once you have disconnected the air line and turned the pressure down.

Perform the press test

a. Press "Special Function button" and turn knob counter clockwise to “Test Furnace” and press the "Next" button.

b. Now turn the knob clockwise to press test and press the "Next" button again.

c. At this point each time you press the "Next" button the cylinder should move either up or down and you should be able to hear the air changing directions through the valve.

d. Once you hear the air, slowly increase the pressure and reconnect the air hose to the valve.

5. Listen for the air and using a mirror, look inside the muffle and see the air cylinder moved. The display will show two sets of numbers.

6. The numbers should be between 2300 and 2600 and there should be a difference of at least 50. If either number is 4095 there could be a problem with the press sensor board.

Display reads example:

Press test down or up

tp 2400 bot 2450

more reasons. one source

Press Regulator Adjustment

Insure there is an adequate air supply by checking the pressure gauge on the air supply. The press regulator should always be set at 4.25 Bars or 62 PSI. If the regulator falls below this amount check your air supply before adjusting the valve. If your pressure is to high then the regulator must be adjusted.

Make sure the hose is correctly attached to the Regulator Nipple.

Grab the hose, completely surrounding it with your hand and run your hand along the hose from the nipple to the air supply checking for leaks.

1. Pull the regulator adjust valve up.

2. Twist Clockwise to decrease pressure or counter clockwise to increase pressure.

3. Once the optimum pressure of 4.25 Bars (62 PSI) has been reached, push the regulator adjust valve down. This will lock it in place and hold the correct pressure

4. Run a press test to insure adequate pressure.

Regulator cannot be set up for 4.25 bars (62 psi.)

A. Check air supply for sufficient pressure.

B. Check connections.

C. Check to see if the compressor is working. If all seems normal the regulator is probably bad and needs to be replaced.

more reasons. one source

What type of issue are you having?

Power

Temperature

Lift

Vacuum

Replacement Parts

Error List

Operation Manual

Table does not move.

Open the door using a 3/32 hex key. Then remove the cover over the lift slide using a 11/32 nut driver or wrench. Is the cable broken? If so the P/N is **96287**.

Push either the arrow up or down button to turn the motor on. Watch the motor, did it start turning both the shaft and the pulley or was only the shaft moving?

If the motor shaft was turning but not the pulley, then the set screws on the pulley need to be tightened.

If both the motor shaft and pulley were turning, then the problem is that the spring on the lift cable is stretched out. The replacement P/N is **96287**.
If the motor did not come on then it needs to be replaced. The P/N is **96286**.

Table pops when it opens

If the table is popping when it opens at the end of a program, the problem could be that the table is sticking or the vacuum is not releasing. If the table is sticking try cleaning both the table and the o-ring with water or Windex. If the table still popped, try putting a light layer of dust on the o-ring. To do this turn the firing tray over and run it along the o-ring on the bottom of the casting. Run another program with vacuum to see if the table still pops.

If it is still popping then either the o-ring or the table or both need to be replaced. The P/N for the lift table is **96025** and the o-ring is **96042**.
If the problem is with the vacuum then refer to the vacuum trouble shooting HERE

more reasons. one source

Vacuum Issues

Vacuum Troubleshooting

Vacuum Calibration

more reasons. one source

Vacuum

No Vacuum – Upper limit switch, vacuum valve, vacuum pump, vacuum calibration, version of software - Anything before 1004 may not actuate the plunger

Continuous Vacuum during a program - normal

Partial Vacuum – weak pump, vacuum

Fast Cool

Does the Vacuum pump get hot? If so then check the version of software. Anything before 1004 may not actuate the plunger.

Err 1 and Er 9 --- No Vacuum Error:

1. Is the table and o-ring clean? Are there pits in the table?

Is the vacuum pump plugged into the back of the furnace?

Does the vacuum pump work properly?

4. Check the upper limit switch; make sure it is being actuated fully when the lift is up.

5. Is the vacuum valve plunger being actuated? Software versions before 1004 may not actuate the plunger. To check the version press “Special Functions” —> 9 —> Enter.

6. Vacuum relay may not be working. Check the wiring to the SSR and make sure there is an output voltage when the voltage across the input terminals is 5V DC.

Vacuum Calibration

To calibrate the Vacuum -- Press Special Function —> Enter —>13 —> Enter —> 5 —> Enter —> 11 —> Enter.

The table should go up and the pump should engage. The 4-digit display should display the vacuum counts. Any value over 241 is OK to calibrate.

To calibrate Press Enter —> the 4-digit display should show 740 (mm of mercury)

Input a value between 750 to 760 to represent the maximum vacuum, press Enter.

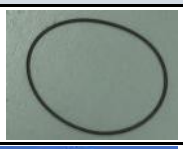
Cycle the power again to make sure Err 7 is not displayed at start up,

Run a vacuum test by pushing “special functions” input 80 then enter. The number on the display is the count. It should start at 67-72 and climb to at least 240. If the count start at 29 or 30 and does not rise that means there is a problem with the vacuum sensor and it needs to be replaced. The P/N is **96067**. If the count does not reach 240 it could be the vacuum pump, the table, the o-ring, the vacuum valve, or the firing tray. Try a different pump, clean the table and o-ring, use another firing tray.

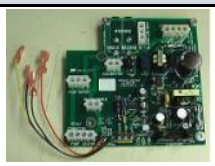
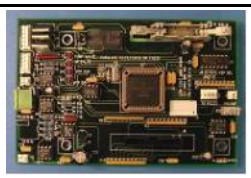
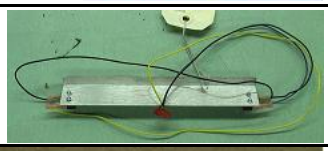
If the vacuum is not releasing or taking to long to release, try cleaning or replacing the release valve plunger the P/N is **96070**. If that does not fix it or the valve is not activating then the whole assembly needs to be replaced, the P/N is **96288**

Part Number	Description
96004	#10368 Power Cord 115 Volt
96005	#10464 PUMP CORD EUROPEAN SHUKO
90006	#10369 POWER CORD PUMP 115V
96008	#10463 POWER CORD EUROPEAN SHU 230V
96011	#10225 RUBBER FEET LARGE PKG-4
96015	#10343 FIRING TRAY REGULAR
96016	#10367 FUSE 12 AMP PKG 2
96017	#10486 FUSE 6.3 AMP 230V
96023	#10233 LIFT DRIVE PULLEY
96025	#10239 LIFT TABLE
96026	#11246 LIMIT SWITCH
96034	#01059 MUFFLE PRO 100 115V
96035	#01326 MUFFLE PRO 100 100V/115V
96039	#01063 MUFFLE PRO 100 230V

NEXT PAGE

Part Number	Description
96042	#10321 O RING VITON 
96057	#10953 VACUUM PUMP MUFFLER
96060	#10014 SOLID STATE RELAY 10 AMP
96067	#10052 VACUUM SENSOR
96070	#10290 RELEASE VALVE PLUNGER
96074	#10302 VALVE VACUUM 2-WAY
96202	#11516 MOTOR REGULAR DUTY
96225	#10931 SOLID STATE RELAY 25 AMP
96235	VACUUM HOSE 1/4IN ID
96282	PCB FUSE HOLDER, FUSE / SOCKET ASSY
96286	#01353 DRIVE MOTOR FIRELITE
96287	#01348 LIFT CABLE FIRELITE
96288	#01346 VACUUM VALVE ASSY FIRELITE

NEXT PAGE

Part Number	Description
96289	#01356 POWER SUPPLY PCB FIRELITE 
96290	#01358 LOGIC PCB FIRELITE CALIB 
96291	#01354 LIMIT SWITCH ASSY FIRELITE 
96293	#11213 OVERLAY FIRELITE
96294	#01368 POWER SWITCH ASSY FIRELITE
96295	#01100 SPEAKER ASSY FIRELITE
96296	#01347 VACUUM HOSE ASSY FIRELITE
96297	#11290 COOLING SHELF FIRELITE
96302	#11316 PROG LOG MAGNET
96307	#10086 1/8NPT X 1/4 BARB
96312	#11321 THERMOCOUPLE

Firelite Error List

ER 1 or 9 - **No Vacuum Error** - The program called for vacuum and after two minutes the vacuum did not reach an acceptable level. Clean the lift table and O-Ring seal. Check all vacuum connections of the pump and furnace, then try the program again.

ER 2 - **Thermocouple error** - The logic board has detected an open circuit in the thermocouple. Replace the thermocouple to correct this condition.

ER 3– Temperature calibration error - The logic board has detected a problem with the temperature calibration. Contact Whip Mix to correct this condition.

ER 4 - Lift calibration error - The logic board has detected a problem with the lift calibration.

ER 5 - Vacuum calibration error - The logic board has detected a problem with the vacuum calibration.

ER 6 - Program memory error - The logic board has detected a problem with the memory that stores your programs. Check all your programs and correct any that have changed.

ER 7 –Setup error - The logic board has detected a problem with the special functions setup valves. Check all special functions as described in the operation manual.

NEXT PAGE

ER 8 - Maximum temperature error - The furnace has run away to a temperature beyond the maximum allowed. Turn the power off and allow the furnace to cool. This error may indicate a bad thermocouple. Test the furnace by running a program. If it fails again, contact Whip Mix for instructions.

ER 12 - Bottom lift fail error - The computer has detected an error with the bottom lift mechanism. The lift hasn't pushed the bottom limit switch after the allowed time.

ER 13 - Top lift fail error - The computer has detected an error with the top lift mechanism. The lift hasn't pushed the top limit switch after the allowed time.

more reasons. one source

Temperature Troubleshooting

No heat or it takes to long to heat

Thermocouple Error

Muffle runway (Over fire)

Firelite Thermocouple Error

Press Special Functions —> 22 —> Enter —> 650 —> Enter

If the temperature rises and stops around 650°C then the temperature just needs to be calibrated. Contact Whip Mix for calibration.

If the thermocouple error comes back, test it with a volt-ohm meter to see if it has continuity. A reading between 0 and 1 ohm (Ω) is good, anything higher and the thermocouple needs to be replaced. The thermocouple P/N is **96312**

What type of issue are you having?

Power

Temperature

Lift

Operation Manual

Replacement Parts

more reasons. one source

Temperature Troubleshooting

Unit is not heating or takes too long

The unit is not reaching temperature

Thermocouple Error

Muffle Verification

To test the muffle, first turn the furnace OFF and unplug the power cord.

Remove the back cover using a #2 Phillips head screwdriver.

Disconnect the muffle wires (2 black) from the heater wires (1 black and 1 white).

Using a volt-ohm meter set on the ohm (Ω) scale, place the leads inside the connector of the muffle wires (the two black wires). If there is continuity, it should read 14**Ω** ±2 for a 115V unit and 42**Ω** ±4 for a 230V unit.

If the resistance does not fall within the given tolerances then the muffle needs to be replaced. For a 115 volt unit the P/N is **96240** and for a 230 volt unit the P/N is **96239**.

If the furnace is not reaching temperature or the temperature is running away the most likely cause is an intermittent heater relay.

The **Apollo II** solid state heater relay P/N is **96060**. Please note that the installation will require soldering.

The **Pro Burn 12** solid state heater relay is P/N **96225**

Examine the tip of the thermocouple. Can you still see the metal or is there solid white build up.? The build up is caused by contamination and too much of it on the thermocouple can cause a thermocouple error.

If the tip is in good condition, then what is the final temperature of the programs? If it is over 950c it will cause the thermocouple to fail because it can not read above this temperature.

If you have checked both of these and the error comes back the thermocouple needs to be replaced. The P/N is **96142**.

Table does not move

Remove the back cover and inspect the lift components. Is the lift cable broken? If so the P/N is **96287**.

If not then push either the arrow up or down button to turn the motor on. Watch the motor, did it start turning both the shaft and the pulley or was only the shaft moving?

If the motor shaft was turning but not the pulley, then the set screws on the pulley need to be tightened.

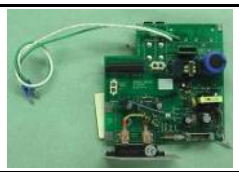
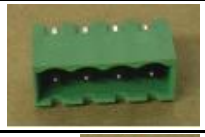
If both the motor shaft and pulley where turning, then the spring on the lift cable is most likely stretched out. The lift cable is P/N **96287**.

If the motor did not come on then it needs to be replaced.

The motor is P/N **96286**.

Part Number	Description
96003	#10360 COOLING TRAY
96004	#10368 POWER CORD 115V
96008	#10463 POWER CORD EUROPEAN SHU 230V
96011	#10225 RUBBER FEET LARGE PKG-4
96016	#10367 FUSE 12 AMP PKG 2
96017	#10486 FUSE 6.3 AMP 230V
96022	#01022 LIFT DRIVE MOTOR W/PULLEY
96023	#10266 LIFT DRIVE PULLEY
96060	#10014 10 AMP SOLID STATE RELAY
96061	#01007 SPEAKER 3IN ASSEMBLY
96099	#01021 LIMIT SWITCH LONG LEVER BTM
96142	#10559 THERMOCOUPLE TYPE N
96202	#10264 MOTOR REGULAR DUTY

NEXT PAGE

Part Number	Description
96220	#10577 LIFT CALBE
96255	#10931 SOLID STATE RELAY 25 AMP
96229	#01373 APOLLO FOOT SWITCH ASSY
96232	#01282 PCB KEY ASSY APOLLO II
96236	#POWER SUPPLY 230V VAC APOLLO 
96237	#01261 POWER SUPPLY 115V VAC APOLLO
96238	#01283 PCB MAINBOARD APOLLO
96239	#11036 MUFFLE 230V APOLLO
96240	#11034 MUFFLE 115V APOLLO
96245	#11032 APOLLO HEARTH TRAY
96282	PCB FUSE HOLDER, FUSE/SOCKET ASSY
96284	APOLLO COMPLETE PACKAGING
96304	#10028 4-PIN HEADER 
96306	#10151 4-PIN CONNECTOR
96317	#11088 OVERLAY APOLLO II

What type of issue are you having?

Power

Temperature

Replacement Parts

Operation Manual

more reasons. one source

Temperature Troubleshooting

Unit is not heating or takes too long

The unit is not reaching temperature

Thermocouple Error

Muffle Verification

To test the muffle, first turn the oven OFF and unplug the power cord.

Lay the oven on its' back and remove the 4 screws from the chassis top using a #2 Phillips head screwdriver.

Set the oven up and open the door.

Underneath the muffle there is a bracket with 3 screws in it. Using a 5/64" hex key remove the 3 screws. *(Note: not all models have these screws.)*

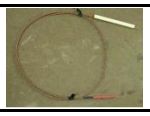
Leave the door open and slide the chassis completely forward.

Close the door and tilt the chassis top to the right so it is out of the way.

Now disconnect the muffle wires from the power supply.

Using a volt-ohm meter set on the ohm (**Ω)** scale, place the leads inside the connector of the muffle wires (the two black wires). If there is continuity, it should read 14**Ω** ±2 for a 115V unit and 42**Ω** ±4 for a 230V unit.

If the reading was not within tolerance then the muffle needs to be replaced. The P/N are: **96128** for a 115V and **96129** for a 230V

Part Number	Description
96004	#10368 POWER CORD 115V
96016	#10367 FUSE 12 AMP PKG 2
96061	#01007 SPEAKER 3 INCH ASSEMBLY
96090	#11193 COOLING FAN KIT
96124	#10848 DOOR INSULATION FOR PRO BURN
96128	#10849 MUFFLE FOR PRO BURN 115V
96142	#10559 THERMOCOUPLE TYPE N 
96225	#10931 SOLID STATE RELAY 25 AMP
96277	#11173 HEARTH TRAY FOR PRO BURN
96278	#01338 PCB MAIN ASSY FOR PRO BURN
96279	#01330 POWER SUPPLY BOARD PRO BURN
96282	PCB FUSE HOLDER, FUSE/SOCKET ASSY
96285	PRO BURN COMPLETE PACKAGING
96304	#10028 4-PIN HEADER
96306	#10151 4-PIN CONNECTOR

more reasons. one source

Select Your Furnace Model

Pro 200

Pro Press 200

more reasons. one source

What type of issue are you having?

Power

Temperature

Vacuum

Lift

Error List

Special Functions

Replacement Parts

Operation Manual

more reasons. one source

What type of issue are you having?

Power

Temperature

Press

Lift

Vacuum

Special Functions

Error List

Operation Manual

Replacement Parts

Temperature Troubleshooting

Unit will not heat up

Thermocouple Error

Furnace Will Not Heat Up

1. Turn the furnace off and back on again. Some errors will not allow the muffle to be activated without resetting the furnace.

2. Check the idle temperature, if the temperature will not increase and hold at the idle temperature the relay or muffle may need to be replaced.

NOTE: THE STEPS BELOW COULD BE HAZARDOUS AND MUST BE PERFORMED WITH PROPERLY INSULATED TOOLS!

3. Check the muffle for continuity at the power terminals. The resistance should be 11Ω ±1.5 for 115v muffle and 38Ω ±3 for a 230v muf-muffle. If there is no continuity on the muffle it must be replaced.

4. If the resistance is correct, remove the keyboard cover to verify the heater relay is working.

5. Using a volt-ohm meter in the alternating current mode, check the supply voltage. The supply voltage can be seen on terminal 1 of the relay. The voltage should be 120V or 230V depending on the incoming voltage to the unit.

NEXT PAGE

6. Check terminal 2 of the relay. This is the heater voltage supply. It is only active when the heater is heating. To check this voltage make sure the furnace is heating and the heater LED is blinking on the logic board. The voltage reading on the terminal should correlate with the blinking LED.

7. The voltage climbs up and down as the relay opens and closes. Voltage can be seen to be 0 VAC to 120 VAC (or 230 VAC) and back to 0 VAC, switching back and forth every time the LED blinks. Looking toward the back of the logic board find the green LED on D0401, this is directly behind the TP_HEAT test point.

8. If step 5 fails the logic board is bad. If steps 6 and 7 fail the relay is bad. Check the traces on the board looking for open and burn spots. Also make sure the unit is plugged in and in the ON position while checking the voltages.

The Pro muffle is P/N **96035** for 115V and **96031** for 230V.

The Press muffle is P/N **96100** for 115v and **96101** for 230V.

The logic board for a Pro is P/N **96342** and the Press is P/N **96343**.

Error 10 Thermocouple Error

Temperature read by furnace exceeds limits.
The furnace has run away to a temperature beyond the maximum allowed. Turn the power off and allow the furnace to cool. This error may indicate a bad thermocouple. Test the furnace by running a program. If it errors again, check the temperature calibration in a profile, the thermocouple may need to be recalibrated or replaced.

Error 11 Thermocouple Error

An open thermocouple detected. The furnace has detected an opening or break in the thermocouple circuit. Check all connections between the logic board and thermocouple. Test the furnace by running a program. If it errors again, the thermocouple will most likely need to be replaced.

Error 20 Thermocouple Error

A runaway muffle was detected.
This is a slightly misleading error since it is actually referring to a problem with the muffle. The furnace has detected a variance in the pulsing for the heater control relay and the muffle. This could mean that a misrepresented voltage was detected by the logic board or that a muffle is about to burn open or break. Test the furnace by running a program, or in a profile to check the accuracy of the temperature calibration. If it errors after confirming the calibration is correct the logic board or muffle may need to be replaced.

NEXT PAGE

Error 23 Thermocouple Error

Sub-clock error was detected.

The logic board has detected an irregular voltage during the heating cycles. This could be caused by a faulty logic board or a muffle that is about to burn open or break. Test the furnace by running a program. If it errors again, the logic board may need to be replaced.

Error 24 Thermocouple Error

Solid heater light (should pulsate) detected.
The furnace has detected an irregularity in the standard pulse of the heater relay. Test the furnace by running a program, this could be an intermittent problem and will not show for a few programs. If the error does show up again the heater relay may need to be replaced.

Lift Issues

Lift Error

Calibration

Component Replacement

Noisy Lift

Error 22 Lift Obstruction

The 200 series furnaces have a lift motor over current warning. This warning is to insure that if there is something in the travel path of the motor or table, the lift will reverse into the opposite direction. This will prevent damage to the furnace and possibly prevent injury if a part of one's body is in the travel path of the lift.

The error will show on the screen, sound an alarm and send the table in the opposite direction. Check for and remove any obstructions that may have caused the error. Test the lift by running it up and down to insure that the error is gone. If the error continues with nothing obstructing the travel the lift current may need to be recalibrated. To recalibrate click HERE

Lift Calibration

1. Go to “Calibrate Oven” in “Special Functions”, enter password “135” and press the knob.
2. Select “Calibrate Lift” and select “Yes” to start.
3. During the calibration of the lift the calibration value will count up during the lift travel.
4. The lift calibration is completely automatic, but you should observe the counts. Insure that the lift calibration is not more then 350 counts if so then repeat the calibration. 350 is too high and will not allow a proper motor directional reverse during the event of an error.
5. If the lift will not calibrate below this point then the motor may need to be replaced. The motor replacement is P/N **96340**

Motor Lift Current Calibration

1. Go to “Calibrate Oven” in “Special Functions”, enter password “135” and press the knob.
2. Select “Calibrate Motor”, select option “Yes” to start calibration.
3. On the result page of Lift Up, the default new value is the max value plus 10. The user can change this value by scrolling the knob. Pressing the knob will accept this value.
4. Change or accept calibration value for Lift Down. This value can be adjusted, but typically the value shown for suggested acceptance is optimal. Do not adjust to less than 50% of the suggested acceptance value since this could cause the lift obstruction error to appear prematurely during the compression phase of the table springs.
5. Press “Next” to accept the values. Insure that the current calibration is not more then 225 counts if so then the calibration will need to be redone. This value is too high and will not allow a proper motor directional reverse during the error. If after the calibration the lift is still giving an error the lift sensors may need to be repositioned or re-adjusted. Click HERE

Checking the Lift Sensor Wires/Connections

1. If the lift is still bottoming out on the chassis or lift obstruction errors will not clear after recalibrating, wires or connections could be at fault.

2. Leave the unit on incase you need to move the table up or down.

3. Remove the back cover, and find the sensors for the lift, watch the lift actuator during travel to insure that it is traveling in the middle of the sensors.

4. Locate the lift sensor board then remove both the top and bottom sensor connections. Check the wire crimp going into the connector for all three wires, if needed re-crimp the connections.

5. Afterwards reconnect the sensor onto the lift sensor board, run the lift again to insure proper travel. The lift current should be recalibrated after any adjustments are made to the sensors.

Adjusting the Lift Sensors

1. Leave the unit on incase you need to move the table to get it out of the way.

2. Remove the back cover, and find the sensors for the lift, watch the lift actuator during travel to insure that it is traveling in the middle of the sensors.

3. If adjusting is needed loosen the screw holding the sensor in place slightly and move the sensor to the desired position. Hold in place while you tighten the screw.

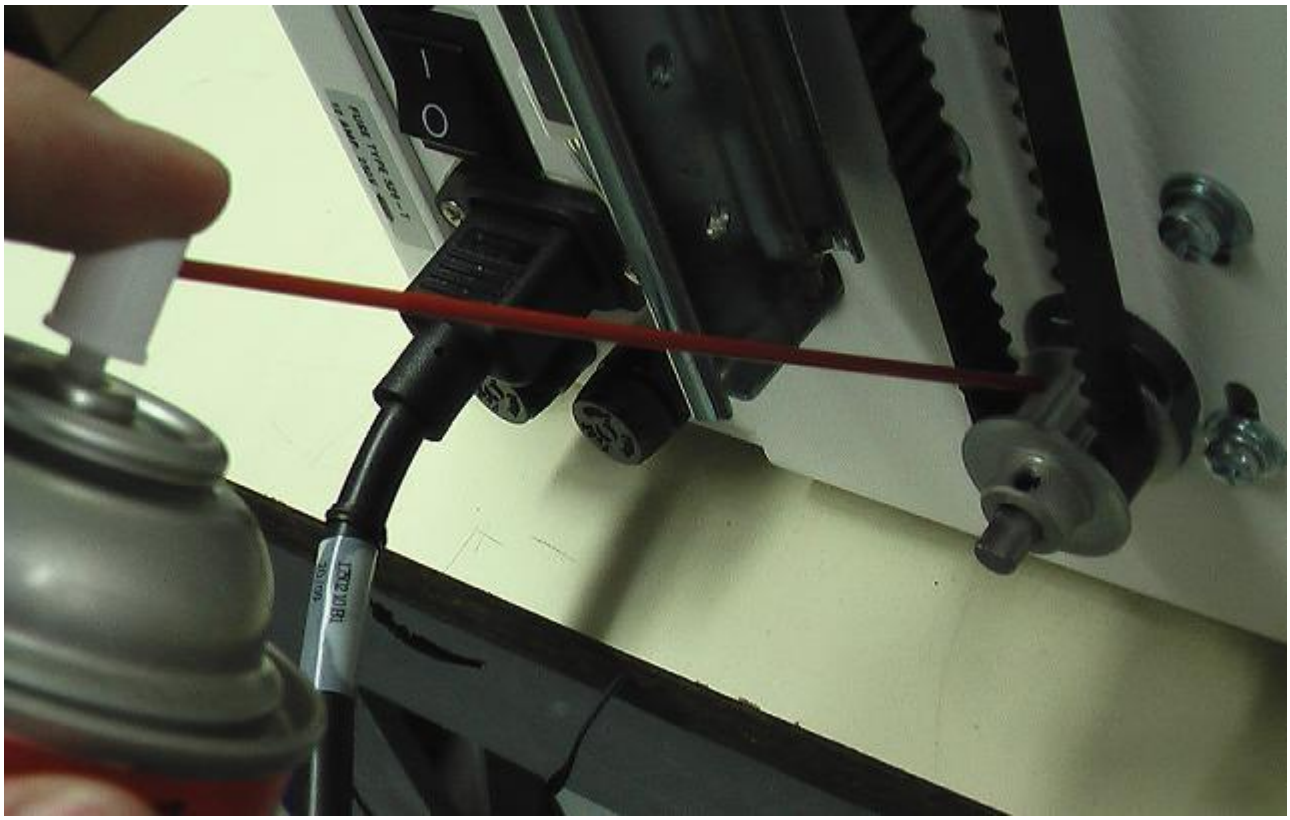
4. Run the lift again to insure proper travel. The lift current should be recalibrated after any adjustments are made to the sensors. To recalibrate click HERE.

Noisy Lift Travel

1. If the lift is squeaking or cracking during travel up or down it may need to be lubricated or adjusted.

2. Begin with checking the 2 set screws on the pulley to insure that they are tight. These are a size 5/64 hex.

3. If the belt is still making noise after this adjustment try lubricating the grooved area of the pulley and running the lift up and down to spread it on the inside of the belt. Be sure to use only a silicon based lubricate, as they go on wet and dry to leave a dry-lubricating, surface protecting film.



more reasons. one source

Component Replacement

Motor Replacement

Belt Replacement

more reasons. one source

Lift Belt Replacement P/N 96021

1. Move the table to the fully down position, turn the furnace off and unplug it.

2. Remove the back chassis cover and the top 2 motor screws, slightly loosen the bottom two.

3. Move the motor up until the belt is easily removed from the motor pulley, using a 9/64” hex key remove the two screws securing the lift plunger block to the belt.

4. Replace with a new belt, wrap belt around both pulleys, starting with the bot-bottom. Push down on the motor and tighten the bottom left screw, push down the motor and tighten the bottom right screw.

5. Slightly loosen the bottom left screw, push down on the motor and re-tighten it.

6. Loosen the bottom right screw, push down on the motor, and re-tighten it.

7. Level the motor if leaning to one side or the other.

8. Repeat steps 7-9 until the top motor mounting holes are exposed.

9. Insert the upper motor screws and tighten. While holding the lift belt plunger block in one hand place the belt between the plunger block and the lift guide.

10. Place the plunger block flush up to the lift guide “sandwiching” the belt between the two. Tighten the plunger block to the lift guide with the 9/64 screws.

11. Run the lift up and down test to verify the repair has been performed correctly.

12. Click HERE to recalibrate the motor and lift after belt replacement. After calibration, replace the back cover.

more reasons. one source

Drive Motor Replacement

1. Turn the furnace on and run the table to the fully down position.

2. Remove the power cord, keyboard top cover from the chassis, and remove the power wires from the terminals on the motor.

3. Remove the back chassis cover, using a #2 Phillips head screwdriver loosen the motor screws.

4. Move the motor up so the lift belt can be removed from the motor pulley, remove the screws, and slowly pull the motor up and out of the chassis.

5. Slide motor into chassis and line motor up with bottom mounting brackets, then loosely insert bottom screws (don't forget the washers!).

6. Slide belt over both motor pulleys. Push down on the motor and tighten the left bottom screw. Push down again and tighten the right bottom screw.

7. Loosen the left screw and push down on the motor again. Tighten the left screw, and loosen the right screw, push down on the motor and tighten the right screw.

8. Make sure the top motor mounts are not obstructed and insert the upper screws (don't forget the washers!) into the mounting holes on the motor.

9. Tighten all four screws. Replace the motor wires making sure the purple wire goes on the right motor terminal then replace the keyboard top cover.

10. Turn the furnace on and run the lift up and down test to insure the repair has been performed correctly. The motor and lift must now be recalibrated. Click HERE

Special Functions

Start Night mode—The furnace has a Night Mode feature that will reduce the temperature in the muffle and raise the lift to prevent moisture build up.

Change Idle temperature— The idle temperature is the temperature the furnace will maintain between programs. The furnace comes from the factory with the idle temperature set at 0° C, so you must enter a temperature for this feature to suit your needs.

Set vacuum level—The factory setting for vacuum is 71 cm of mercury. The acceptable range is from 22 cm to 75 cm of mercury or 11.0 inches to 30.0 inches of mercury.

Set Displayed Temperature Units— Select between Centigrade and centimeters or Fahrenheit and inches.

Set program start delay— The furnace has a unique feature that allows the operator to program a delay to occur before the start of all programs. This delay occurs before the entry time set into each program begins. This feature may be changed without affecting the programs or calibrations stored in the furnace.

Set Night mode temperature— The furnace comes from the factory with the Night Mode temperature set at 150° C (302° F). This temperature may be adjusted from 0 to 400° C (752° F).

Constant vacuum pump—Selecting constant vacuum will cause the vacuum pump to run continuously during the vacuum cycle of a program.

Change Music Volume— This adjusts the volume of the tones from the unit.

NEXT PAGE

Select Language— This allows the user to choose from the following list of languages: English, French, Dutch, Italian, and Spanish.

Cal Low Fusing— This allows the user to compensate for over fires under 800°C/ 1470°F.

Cal High Fusing— This allows the user to compensate for over fires above 800°C/ 1470°F.

Call Press Fusing— Allows the user to compensate for under/over fires in press programs.

Export Programs— Transfers programs from the furnace to a memory stick.

Import Programs— Transfers programs from the memory card to the furnace.

Export Settings— Transfers settings from the furnace to the memory stick.

Import Settings— Transfers settings from the memory stick to the furnace.

Test Furnace— Several tests to aid in diagnosing the furnace should a problem occur.

Calibrate Oven— **NOTE:** ***This item of the Special Functions menu is typically reserved for Whip Mix certified technicians. Entering certain passwords could result in loss of programs and calibration.***

Vacuum Troubleshooting

Pump Issues
Vacuum Errors
Vacuum Valve
Vacuum Test
Calibration
Component Replacement

Error 12 No Vacuum

No vacuum was detected 40 seconds after it was called for. Check the vacuum hose and pump power cord to insure they are connected. Test by running a program and insure that the pump comes on during the vacuum section of the program. If not run a vacuum TEST to help discover the source for the error.

Error 13 Not Enough Vacuum

Requested amount of vacuum not met after 100 seconds. Check the vacuum hose for any debris that could be causing the pump not to pull the requested amount of vacuum. Run a vacuum TEST to insure that the vacuum pump is able to pull the requested vacuum amount, if not check with a known good vacuum pump to insure the furnace is operating correctly.

Pump Issues

Pump does not run during programs

Pump will not run during self test

Pump Does Not Turn On During Programs

1. Plug the pump **directly into the wall**. If the pump is running and pulls a vacuum then the pump is probably fine and the furnace must now be looked to as the source of the problem.

2. Make sure that the furnace is turned off, and that the power cord and pump cord are plugged into the furnace.

3. Turn the furnace on and listen for the pump to turn on during the initial self-test. If the pump turns on during the self-test then there should be no problem with the pump or the logic board.

4. Make sure the table is closed and begin a vacuum TEST on the furnace.

5. Run motor down test - Does the lift fully open and do the numbers on the right side of the screen read 0 or 99? (99 = fully open or fully closed. 0 = lift moving in either direction)

6. Run the motor up test - Does the lift fully close the table? Do the numbers to the far right of the screen = 0 or 99?

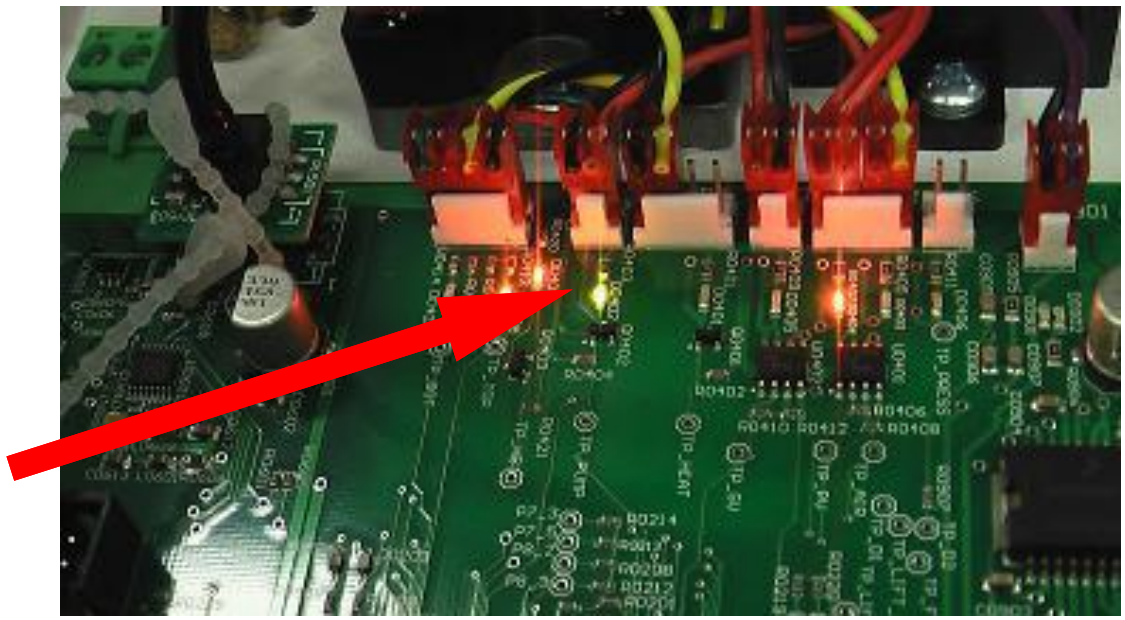
7. Press the “Change Program” button, turn the knob to select “Look at a program”, press the “Next” button. Look at the programs that are supposed to have a vacuum and see if the settings are correct for the program to engage the vacuum pump.

Pump Does Not Turn On During Self-Test

1. Check to see if the pump is plugged securely into the furnace.

2. Remove the keyboard top cover.

3. Looking toward the back of the logic board find the green LED, D0402, it is directly behind the TP_PUMP test point.



4. The pump should come on during the self-test, Test #9.

5. Is the pump LED on the board illuminated when the pump is running?

If it is the pump relay is bad and must be replaced. If it is not the logic board needs to be replaced. The relay is P/N **96060** and the logic board for a Pro is P/N **96342** the Press board is P/N **96343**.

Vacuum Test

1. Press the table up arrow button. You cannot start a vacuum test until the table is fully up.

2. Press the “Menu” Button, select “Special Functions”, and select “Test Furnace”.

3. Press the “Next” Button, select “Vacuum Test”.

4. Press the “Next” Button, and the vacuum test will automatically begin.

5. There will be three numerical indicators on the screen, each has its own meaning:

• The number to the far left is the vacuum count. That is the vacuum sensor reading.

• The second in the middle is the centimeters or inches of mercury

• The third is the current condition of the table 0 = moving, 99 = fully up or fully down.

6. Watch the numerical indicators as they rise. The third value should stay at 99.

7. Wait for the vacuum count to reach 240, at that point the Centimeters or Inches of Mercury should be 71cm or 28in.

8. Once the vacuum has reached 240 then press the “Next” Button. This will place the test in the hold position, allowing you to watch for changes in vacuum pressure and readings. The acceptable loss is 1 cm within 5 minutes.

9. Once the Test has been in “hold” for 5 minutes press the “Next” Button to end the test.

10. If the test passed then there is no need to calibrate. If the numbers ran over or stopped short of 71cm or 28in of mercury at 240 counts, then the vacuum must be re-calibrated. If the numbers dropped outside the acceptable loss range then the vacuum system has a leak. It will need to be repaired and then re-calibrated. Click HERE for calibration instructions.

Low Vacuum Calibration

1. Make sure the vacuum pump is connected to the furnace.
2. To start the low vacuum calibration. Press the “Menu” button.
3. Turn the select knob to “Special Function”, turn the select knob to “Calibrate Oven”, and press the “Next” button.
4. Turn the select knob to password “135”; press the “Next” button.
5. Turn the select knob to “Cal Low Vacuum”; press the “Next” button.
6. Turn the select knob to “Yes”, press the “Next” button.
7. The table will open and when it gets to the bottom the vacuum counts on the left should read between 48-60, press the “Next” button and the table will travel to the top. If it does not read between 48-60 the vacuum sensor will need to be replaced. The part number is **96341**.
8. Once the table reaches the top the display should read a low vacuum number, make sure this number is 26 and press “Next” to save the calibration.
9. After the low vacuum has been calibrated, click HERE for instructions on high vacuum calibration.

High Vacuum Calibration

1. Make sure the vacuum pump is connected to the furnace.
2. Run a vacuum TEST to make sure there are no vacuum leaks before calibration.
3. To start calibration press the “Menu” button, turn the knob to “Special Function”, turn the knob to “Calibrate Oven”, and press the “Next” button.
4. Turn the select knob to password “135”; press the “Next” button.
5. Turn the select knob to “Cal High Vacuum”; press the “Next” button.
6. Turn the select knob to “Yes”, press the “Next” button.
7. The vacuum will begin to rise. When the vacuum count reaches 240 press “Next”
8. Press “Next” on the 710 screen and the 71 screen.
9. Perform a vacuum TEST to confirm calibration.

Error List

10 Thermocouple Error - Temperature read by furnace exceeds limits. Aborts the running program and turns the heater off.

11 Thermocouple Error - An open thermocouple has been detected. Aborts the running program and turns the heater off.

12 No Vacuum - No vacuum was detected 40 seconds after it was called for. Aborts the running program.

13 Not Enough Vacuum - Requested amount of vacuum not met after 100 seconds. Aborts the running program.

17 Cannot Read Temp - Could not read ambient temperature. Aborts the running program.

19 Ready Pin Error - ADC ready pin (serial port) error detected. Aborts the running program and turns the heater off.

20 Thermocouple Error - A runaway muffle was detected. Aborts running program and turns the heater off.

22 Lift Obstruction - Lift current exceed maximum amount, check for obstruction. Aborts the running program.

23 Thermocouple Error - Sub-clock error was detected. Aborts running program and turns the heater off.

24 Thermocouple Error - Solid heater light (should pulsate) detected. Aborts the running program and turns the heater off.

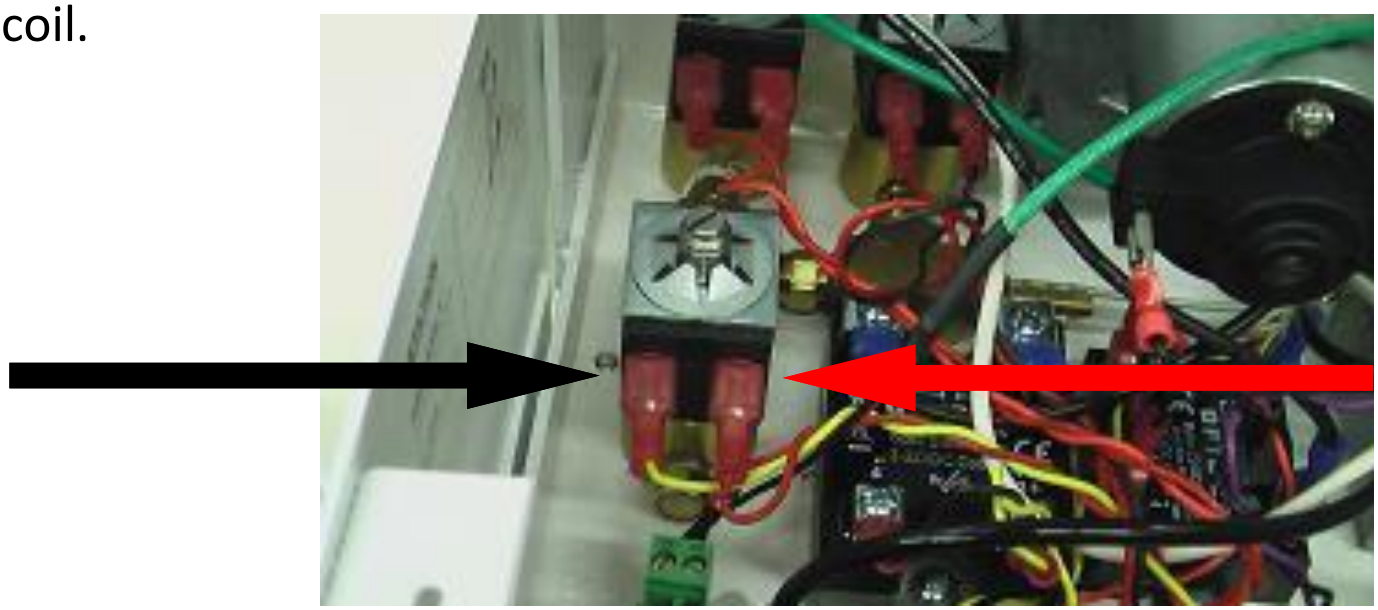
more reasons. one source

Vacuum Valve Troubleshooting

1. Remove the keyboard top cover.

2. Run a vacuum test. During the vacuum test, use a volt-ohm meter to check the voltage on the air valve when the vacuum is released.

3. Place the negative (Black) lead on the left terminal of the vacuum valve coil. The positive (Red) lead goes on the right terminal of the vacuum valve coil.



The nominal voltage is .06vdc. Failure occurs at 0vdc or any value greater than .1vdc.

- Failure = bad logic board
- Passing = bad valve or a bad coil

Vacuum Component Replacement

Vacuum Valve Assembly

Vacuum Plunger

Release Plunger

Vacuum Sensor

Table

O-Ring

Vacuum Valve Assembly Replacement

1. Remove all trays and work from the lift table and close the table to the muffle chamber. Turn off power to the furnace, unplug the power and pump cords. Lastly remove the vacuum pump hose from the rear barb.

2. Remove the two screws on the back of the furnace using a Phillips screwdriver, slide the gray keyboard cover completely forward and then lift up to remove it.

3. Also remove the two screws on either side of the pump outlet.

4. Turn the furnace on its back or side to remove the screws on the bottom that hold the vacuum valve in place (2 on the Pro Press 200 and 3 on the Pro 200).

5. Set the unit upright and locate the vacuum valve assembly inside the furnace.

6. Before you remove the valve assembly, disconnect the vacuum hose at the tee junction (located under the drive motor) and the wires going to each valve. Twist-Twisting the wire pairs together will help to reinstall them later.

7. Replace with new valve assembly and reconnect the hose at the tee junction. Reconnect the wires, red and yellow on the release valve, red and orange on the vacuum valve, and black and red on the Argon valve (only the Pro 200 has the Argon valve).

8. Now turn the unit on its back or side and replace the screws that hold the valve in place. Stand the furnace back up and replace the pump outlet screws, keyboard top cover, cords and the vacuum pump hose to the rear barb.

9. Perform a vacuum TEST to insure the vacuum is working properly now.

more reasons. one source

Vacuum Plunger Replacement

P/N 96147

1. Remove all trays and work from the lift table and close the table to the muffle chamber. Turn off power using the switch in the back of the furnace, unplug the power and pump cord.

2. Remove the two screws on the back of the furnace using a Phillips screwdriver, slide the gray keyboard cover completely forward and then lift up to remove it.

3. Also remove the two screws on either side of the pump outlet.

4. Push the pump outlet out of the chassis leaving the wires connected, this will make room for the valve to lift off the stem.

5. Remove the retaining clip from the top of the vacuum stem with a small flat head screwdriver or pliers. Lift the valve off the stem leaving the wires attached.

6. Loosen the stem with vise grips and remove to find the vacuum plunger inside. Replace with new vacuum plunger making sure that the spring on the plunger is toward the bottom.

7. Tighten the vacuum stem back on, replace the valve and retaining clip. Push the pump outlet back into place and replace the screws.

8. Now you can replace the chassis top cover, replace cords and perform a VACUUM TEST to insure the vacuum is working properly now.

Release Plunger Replacement

P/N 96070

1. Remove all trays and work from the lift table and close the table to the muffle chamber. Turn off power using the switch in the back of the furnace, and unplug the power cord.

2. Remove the two #8 screws on the back of the furnace using a Phillips screwdriver, while lifting up from the back of the gray chassis top cover pull forward and remove.

3. Remove the retaining clip or 1/2” nut from the top of the release stem with a small flat head screwdriver or wrench. Lift the valve off the stem leaving the wires attached.

4. Loosen the stem with vise grips and remove it to find the release plunger inside. Replace with new release plunger making sure that the spring on the plunger is toward the bottom.

5. Tighten the release stem back on, replace the valve and retaining clip.

6. Now you can replace the chassis top cover, the power cord and perform a vacuum TEST to insure the vacuum is working properly now.

more reasons. one source

Vacuum Sensor Replacement

P/N 96341

1. Close the table to the muffle chamber. Turn off power using the switch in the back of the furnace, and unplug the power cord.

2. Remove the chassis top cover, and set to the side.

3. Locate the vacuum sensor inside the furnace on the circuit board.

4. Loosen the two cable ties holding the sensor to the board.

5. Pull up on the sensor and it will come out of its socket, now pull it loose of the small black hose and sit the old sensor to the side.

6. Attach the new sensor to the small black hose and insure that there is at least 1/8 inch on the sensor barb.

7. Notice the orientation of the pins, there is a 1 written on the sensor to denote pin 1 and this should line up with the 1 written on the circuit board.

8. Replace the gray chassis top cover, by lining up the front pegs and as you push it back it should fall into place. Hold in place as you screw the two screws back in place on the back of the furnace.

9. Reconnect cord, turn on power, and perform the Low Vacuum Calibration. After calibration run a VACUUM TEST. If the unit passes then it is ready for use.

more reasons. one source

Table Replacement

P/N 96025

A table replacement should be performed if the table is stained or pitted. Excessive build up can cause lift closure issues and pitting can cause vacuum leaks as well as contamination. If you find you need to replace the table check the following items as they are removed from the assembly:

A. The screw, spacer and washer placement have a specific order and help keep the table level as it travels. Be mindful to maintain the same order.

B. The spring compression should be about the same height in relation to one another.

1. Turn the furnace on and raise the table to the up position.

2. Using a #2 Phillips head screwdriver remove the 3 table screws located under the table that run up through the table springs and into the table.

3. Push the down arrow button to bring the table down.

4. Remove the table being careful not to move the springs out of place.

5. Place the new table onto the springs and run the lift up almost completely to the muffle. Leave about ½ an inch of space between the table and the muffle.

6. Insert the screws with spacers and washers and tighten lightly.

7. Move the table to the up position to make sure the position of the table has not changed and is not off center. Tighten the screws down.

O-ring Replacement

P/N 96042

O-ring Removal

Note: The bottom O-ring is difficult to remove and replace and must be handled delicately! For Top O-Ring removal the muffle must be removed first.

1. Using a #1 slotted (flat head) screwdriver, carefully wedge a part of the O-ring up and out of the groove, making sure not to cut into the ring itself or nick the metal casting.

2. Once a section is sticking out of the groove, slowly begin to pull out the rest of the O-ring.

3. Be careful not to damage the casting during removal as this may cause a vacuum leak.

Top O-ring Replacement

1. Check for dirt or particles on the O-ring or in the casting groove. (Clean with a cotton swab and Windex)

2. The O-ring should slip in fairly easy. If not refer to instructions on bottom O-ring replacement.

Bottom O-ring Replacement

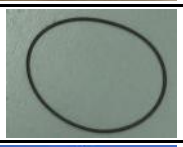
1. Check for dirt or particles in the casting groove or on the O-ring. (Clean with dry cloth)

2. Push the O-ring into four places in the groove at 90° intervals pushing in one direction as you insert the O-ring.

3. Repeat step one until only one section is left sticking out. Push this section in and massage the rest of the O-ring until uniform. *Note: Be careful not to stretch the O-ring.*

Part Number	Description
96001	#10318 CERAMIC PLUNGER RODS PKG OF 2
96002	#01029 CERAMIC PRESS ROD W/ HOLDER
96003	#10360 COOLING TRAY
96004	#10368 POWER CORD 115 Volt
96006	#10369 POWER CORD PUMP 115V
96008	#10463 POWER CORD EUROPEAN SHU 230V
96009	#10330 FAN 115V (BLACK)
96010	#10331 FAN 230V (SILVER)
96011	#10225 RUBBER FEET LARGE PKG-4
96012	#10371 CERAMIC INSERT FOR PRESS
96013	#10370 FIRING TRAY W/ RECESS FOR PRESS
96015	#10343 FIRING TRAY REGULAR
96016	#10367 FUSE 12 AMP PKG 2
96020	#10471 INVESTMENT RINGLINER PKG OF 20
96021	#10233 DRIVE BELT

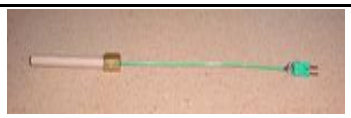
NEXT PAGE

Part Number	Description
96023	#10266 LIFT DRIVE PULLEY
96025	#10239 LIFT TABLE
96031	#01459 MUFFLE PRO 100 230V '06
96035	#01326 MUFFLE PRO 200 115V
96042	#10321 VITON O-RING 
96057	#10953 PUMP MUFFLER
96060	#10014 10 AMP SOLID STATE RELAY
96064	#01013 VACUUM HOSE ASSEMBLY
96068	#01002 VACUUM VALVE ASSY NON ARGON
96069	#01009 VACUUM VALVE ASSY W/ ARGON
96070	#10290 RELEASE VALVE PLUNGER
96071	#10079 RELEASE VALVE FILTER
96072	#01345 PRESS VALVE

NEXT PAGE

Part Number	Description
96091	#11449 FLASH DRIVE PRO 200
96092	#11549 250V 7A FUSE PKG OF 2
96094	#5560 LIFT LIMIT SENSOR
96098	#11499 FLASH DRIVE PRO PRESS 200
96100	#01538 MUFFLE PRO PRESS 200 115V
96101	#01540 MUFFLE PRO PRESS 200 230V
96109	PRO 200 PACKING W/ FOAM
96110	PRO PRESS 200 PACKING W/FOAM
96147	#10327 VACUUM VALVE PLUNGER
96201	#10240 TABLE SPRING
96204	#10961 BLACK KNOB
96225	#10931 25 AMP SOLID STATE RELAY
96235	#5706 1/4" VACUUM TUBING
96252	#01215 BEARING ASSEMBLY

NEXT PAGE

Part Number	Description
96302	#11316 PROGRAM LOGO MAGNET
96303	#10294 1/8" PUSH FITTING
96307	#10086 1/8" NPT X 1/4" BARB
96309	#01344 PRESS REGULATOR
96312	#11321 THERMOCOUPLE R TYPE 
96330	#11476 OVERLAY PRO 200
96335	#11478 OVERLAY PRO PRESS 200
96336	#11482 KEYPAD ASSEMBLY PRO 200
96338	#01544 DISPLAY ASSEMBLY PRO 200
96339	#11500 ENCODER ASSEMBLY PRO 200
96340	#01527 LIFT MOTOR ASM W/ PULLEY PRO 200
96341	#01543 VACUUM SENSOR ASSEMBLY
96342	#11481 LOGIC BOARD PRO 200
96343	#11481 LOGIC BOARD PRO PRESS 200

Select Your Furnace Model

P.D.Q. Digital

Infinity

more reasons. one source

What type of issue are you having?

Power

Programming

Errors

Temperature

Replacement Parts List

Replacement Instructions

more reasons. one source

Please Check the Following:

Large 115v ovens have 20 amp cord.

- Can not plug oven into receptacle.
- The power cord is fully inserted.
- The power switch is in the ON position.
- The outlet circuit breaker is in the ON position.
- The furnace has two circuit breakers on the back of the unit. In the event of an overload, the breakers will “pop out”. If they are, turn the unit off, wait one minute and press the black buttons back into the body of the circuit breaker to reset them.
- If this does not fix the problem, please contact Whip Mix for an RMA.

Infinity Programming

Main Display
Button Descriptions
Entering Programs
Reviewing Programs
Editing a Program

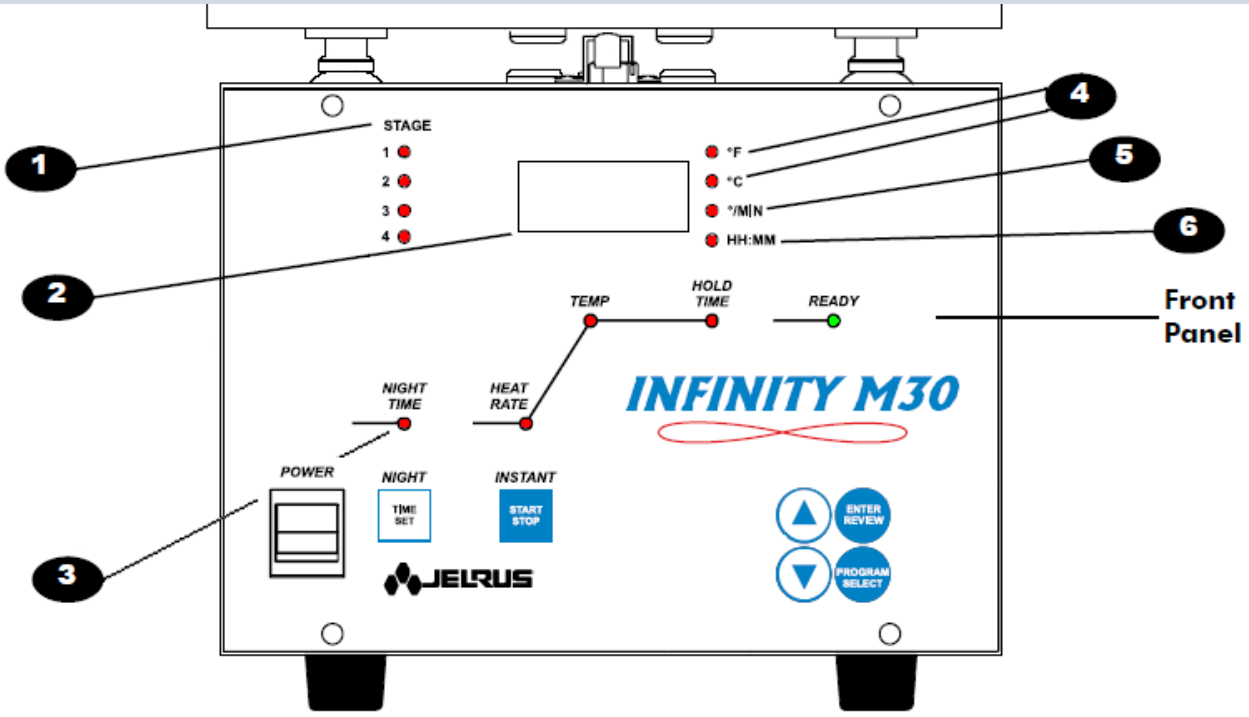
Night Time Set will start a delayed program. The number entered is the time required for the program to be COMPLETED AND READY TO CAST. When a program is running, pressing this button will display the time remaining to complete the program.

This will Start or Stop a program.

Increases or Decreases a number. The longer the button is pressed, the faster the numbers will change. Pressing these at the same time will switch between Fahrenheit and Celsius.

When programming or reviewing a program, press to advance to the next parameter.

Press to select a program or to review a program currently running.



1 - STAGE 1-2-3-4 - While programming, the number of active stages are illuminated. In the burnout process, the current STAGE flashes.

2 - MAIN DISPLAY - The 4 digit display indicates chamber temperature. When programming or reviewing, it indicates PROGRAM NUMBER, NIGHT TIME, HEAT RATE, TEMP and HOLD TIME. It also displays words and error codes.

3 - PROGRAM STATUS GRAPH - Indicates the status of the burnout process.

4 - °F and °C - Identifies the temperature scale.

5 - °/MIN - Identifies heat rate.

6 - HH:MM - Indicates time. If flashing it indicates a power failure has occurred while a program was running.

more reasons. one source

One Stage Program

1 - Press the PROGRAM SELECT button and use the arrows to enter the desired program number, P1 to P30.

2 - Press ENTER/REVIEW to select the program number. The STAGE 1 and NIGHT TIME light will turn on, use the arrows to set the time required for the program to be COMPLETED AND READY TO CAST, 1 to 99 hours.

3 - Press ENTER/REVIEW and the HEAT RATE light will turn on. Enter the desired heat rate, 1°F to 30°F/min (1°C to 17°C/min) or FULL for the maximum rate.

4 - Press ENTER/REVIEW and the TEMP light will turn on. Enter the desired temperature 100° to 2,012°F (38°C to 1,100°C).

5 - Press ENTER/REVIEW and the HOLD TIME light will turn on. Enter the desired hold time up to 4 hours.

6 - The furnace must now be programmed to not use STAGE 2, 3, or 4. After completing step 5 press ENTER/REVIEW. Enter NO for the STAGE 2 HEAT RATE.

7 - Press START/STOP to begin the program immediately. To delay the program to be ready to cast at a preset time (see step 2) press the NIGHT TIME SET button.

NOTE: If the unit sits for 7 seconds without a button being pushed it will revert back to idle mode. Press ENTER/REVIEW to return to the programming prompts.

CLICK HERE FOR A TWO STAGE PROGRAM

Two Stage Program

1 - Follow steps 1-5 for programming a ONE STAGE PROGRAM.

2 - Press ENTER/REVIEW and the STAGE 2 HEAT RATE light will turn on. Enter the desired heat rate of 1°F to 30°F/min (1°C to 17°C/min), FULL for the maximum rate or COOL to program the furnace to cool to a selected temperature.

NOTE: Selecting NO will result in a ONE STAGE PROGRAM. The heat rate can only be set to COOL in a 2,3 or 4 stage program.

3 - Press ENTER/REVIEW and the TEMP light will turn on. Enter the desired heating temperature or the desired cooling temperature.

4 - Press ENTER/REVIEW and the HOLD TIME light will come on. Enter the desired hold time of up to 4 hours.

5 - The furnace must now be programmed to not use STAGE 3 or 4. After completing step 4 press ENTER/REVIEW. Select NO for the STAGE 3 HEAT RATE.

6 - Press START/STOP to begin the program immediately. To delay the program to be ready to cast at a preset time (see ONE STAGE PROGRAM step 2) press the NIGHT TIME SET button.

CLICK HERE FOR A THREE STAGE PROGRAM

Three Stage Program

1 - Follow steps 1-4 for programming a TWO STAGE PROGRAM.

2 - Press ENTER/REVIEW and the STAGE 3 HEAT RATE light will turn on. Enter the desired heat rate of 1°F to 30°F/min (1°C to 17°C/min), FULL for the maximum rate or COOL to program the furnace to cool to a selected temperature.

3 - Press ENTER/REVIEW and the TEMP light will turn on. Enter the desired heating temperature or the desired cooling temperature.

4 - Press ENTER/REVIEW and the HOLD TIME light will turn on. Enter the desired hold time up to 4 hours.

5 - The furnace must now be programmed to not use STAGE 4. After completing step 4 press ENTER/REVIEW. Select NO for the STAGE 4 HEAT RATE.

6 - Press START/STOP to begin the program immediately. To delay the program to be ready to cast at a preset time (see ONE STAGE PROGRAM step 2) press the NIGHT TIME SET button.

CLICK HERE FOR A FOUR STAGE PROGRAM

Four Stage Program

1 - Follow steps 1-4 for programming a THREE STAGE PROGRAM.

2 - Press ENTER/REVIEW and the STAGE 4 HEAT RATE light will turn on. Enter the desired heat rate of 1°F to 30°F/min (1°C to 17°C), FULL for maximum heat rate or COOL to program the furnace to cool to a selected temperature.

3 - Press ENTER/REVIEW and the TEMP light will turn on. Enter the desired heating temperature or the desired cooling temperature.

4 - Press ENTER/REVIEW and the HOLD TIME light will turn on. Enter the desired hold time up to 4 hours.

5 - Press START/STOP to begin the program immediately. To delay the program to be ready to cast at a preset time (see ONE STAGE PROGRAM step 2) press the NIGHT TIME SET button.

Reviewing Programs

1 - Press PROGRAM SELECT and use the arrow keys to select the program to be viewed.

2 - The number of stages in the program are indicated by the STAGE lights.

3 - Press ENTER/REVIEW and the NIGHT TIME light will turn on. The number of hours entered for the entire program to be completed and ready to cast will be on the main display.

4 - Press ENTER/REVIEW again and the HEAT RATE light will turn on and the heat rate entered for that stage will be on the main display.

5 - Press ENTER/REVIEW again and the TEMP light will turn on. The temperature programmed for that stage will be on the main display.

6 - Press ENTER/REVIEW again and the HOLD TIME light will turn on. The programmed HOLD TIME will be on the main display in HR:MM

7 - All of the information for STAGE 1 has now been reviewed. To view STAGE 2, press ENTER/REVIEW again and follow the same procedure as above for the rest of STAGES 2, 3 and 4.

NOTE: NIGHT TIME appears only at the very beginning of STAGE 1.

Editing A Program

1 - To identify which program is running, press PROGRAM SELECT.

NOTE: The program number cannot be changed while a program is running.

2 - To determine the remaining completion time of the program, press NIGHT TIME. The time remaining will appear on the main display for 5 seconds.

3 - Any individual parameter can be increased or decreased during the actual running of all 30 programs.

NOTE: The HEAT RATE cannot be changed to NO in the stage currently running or in the stages already completed.

4 - To change a parameter while a program is running, press ENTER/REVIEW to advance to the desired STAGE and parameter (i.e. HEAT RATE, TEMP, HOLD TIME). Initially, STAGE 1 will appear. Any parameter can be increased or decreased.

5 - Any program can be stopped by pressing the START/STOP button.

6 - If a program is edited while running and the HEAT RATE in STAGE 2, 3 or 4 is set to COOL but the corresponding TEMP programmed is entered to heat or to a higher temperature than the previous stage, the furnace will try to heat with a 0°F/min (0°C/min) HEAT RATE. In this case, when NIGHT TIME SET is pressed, 99:9 (HR:MIN) will flash on the main display, indicating that the program cannot be completed.

Infinity Errors

Error List

Troubleshooting

Error List

Er 1 - INVALID ENTRY ERROR

STAGE, HEAT RATE and TEMP lights Flash - Occurs when the HEAT RATE is set to COOL but the TEMP of that stage is higher than the TEMP of the prior stage (it should be heating). This will occur when a program is already running and a parameter was edited in process.

Er 2 - TABLET TEMPERATURE CALIBRATION ERROR

Occurs when the temperature on the display is outside the allowable range at the time the user pressed the ENTER/REVIEW and UP ARROW buttons to set the furnace calibration temperature to 1,500°F. If this occurs and is not an operator error, it indicates that there is a problem with the thermocouple or main board. Press ENTER/REVIEW to turn off the error indication and continue with the program. Press START/STOP to end the program.

Er 3 - ELECTRONICS MALFUNCTION

Occurs when the main board malfunctions

Er 4 - OPEN THERMOCOUPLE

Occurs if the thermocouple is open or the connecting wire (s) are broken or disconnected from the terminal on the main board.

NEXT PAGE

Er 5 - REVERSED THERMOCOUPLE

Occurs if the thermocouple extension wires have been connected backwards to the terminals on the main board. The error will be detected 5 minutes af- a heating program is started. This error will also occur if the program is started and the chamber door is kept open for 5 minutes or the TRIAC is defective, the heater plates are defective or there is a problem with the main board.

Er 6 - SHORTED THERMOCOUPLE OR DEFECTIVE HEATER PLATES

Occurs if the thermocouple wires are shorted or the heater plates are defective causing the furnace to achieve a HEAT RATE of less than 6% of the maximum attainable HEAT RATE with full power applied to the heater plates for 5 minutes. This error will also occur if a program is running and the door is kept open for more than 5 minutes or the TRIAC or main board developed a problem during a burnout process.

Er 7 - THERMAL RUNAWAY

Occurs when the temperature has exceeded 2,015°F (1,102°C) for 1 minute if the highest temperature programmed was less than 2,000°F (1,093°C). This also occurs when the temperature has exceeded 2,050°F (1,121°C) for 1 minute if the highest temperature programmed was 2,000°F (1,093°C) or higher.

NEXT PAGE

INVALID ENTRY ERROR WHILE A PROGRAM IS RUNNING

The unit will flash 99:99 when NIGHT TIME SET is pressed during a program if the HEAT RATE in STAGE 2, 3 or 4 is set to COOL but the corresponding TEMP is entered to heat to a higher temperature than the previous stage.

FLASHING HR:MM LIGHT - POWER FAILURE

If a power failure occurs, the Infinity will memorize the conditions prior to the power loss. When the power returns, the furnace will return to the proper point in the program and the HR:MM light will be flashing indicating a power failure has occurred. It will continue to flash until START/STOP is pressed.

Error Troubleshooting

Error 1 - Programming error. One of the programmed stages HEAT RATE has been set to COOL but the TEMP of that stage is higher than the temp of the prior stage. To fix this, reprogram the TEMP to a value lower than the prior stage. If the higher TEMP is correct then the HEAT RATE will have to be programmed to at least 1°F/min.

Error 2 - Calibration error. Either the user has calibrated the unit by pressing the UP ARROW and ENTER/REVIEW at the same time when the unit was not at the 1,500°F calibration range or there is a problem with the thermocouple or main board. If the calibration did not occur at 1,500°F then run the unit up to 1,500°F and use the calibration tablets to recalibrate the unit. If this is not the case, allow the unit to cool to ambient temperature. Once cool, verify the reading on the main display compared to the room ambient temperature. If there is a large variation then the thermocouple will need to be replaced. If not, the main board will need to be replaced.

Error 3 - Electronics malfunction. The main board will need to be replaced.

NEXT PAGE

Error 4 - Open thermocouple. Turn the unit off and visually inspect that the thermocouple wires are connected to the main board. The red wire should be on the terminal labeled “+” and the black wire should be on the terminal marked “TB1”. If the wires are in the correct locations then inspect the rest of the thermocouple wire and the tip of the thermocouple in the furnace chamber for any breaks . If any breaks are found, replace the thermocouple.

Error 5 - Reversed thermocouple. This usually occurs 5 minutes after a new thermocouple has been installed or the thermocouple wires have been reseated. Verify that the red wire is going to the terminal labeled “+” and the black wire is going to the terminal labeled “TB1”. If the thermocouple wires were found to be reversed, connect them to the correct terminals. This error can also occur if a furnace program has been started and the door was left open for 5 minutes. If the wires were correct and the door was not left open there may be a problem with the heater plates, TRIAC or main board. For further troubleshooting, CLICK HERE

NEXT PAGE

Error 6 - Shorted thermocouple. If the thermocouple wires are shorted or the heater plates are defective, this can cause the furnace to achieve a HEAT RATE of 6% of the maximum attainable HEAT RATE with full power applied to the heater plates for 5 minutes. Visually inspect the thermocouple wires to insure there are no shorts. If there are no shorts visible, CLICK HERE for further troubleshooting.

Error 7 - Thermal runaway. This can be caused by a bad thermocouple, main board, heater plates or TRIAC. Inspect the thermocouple wires for any shorts or damage, replace if found. CLICK HERE for heater plate troubleshooting

more reasons. one source

Temperature Issues

No Heat

Calibration

more reasons. one source

Make sure the unit is TURNED OFF , UNPLUGGED and COOL TO THE TOUCH.

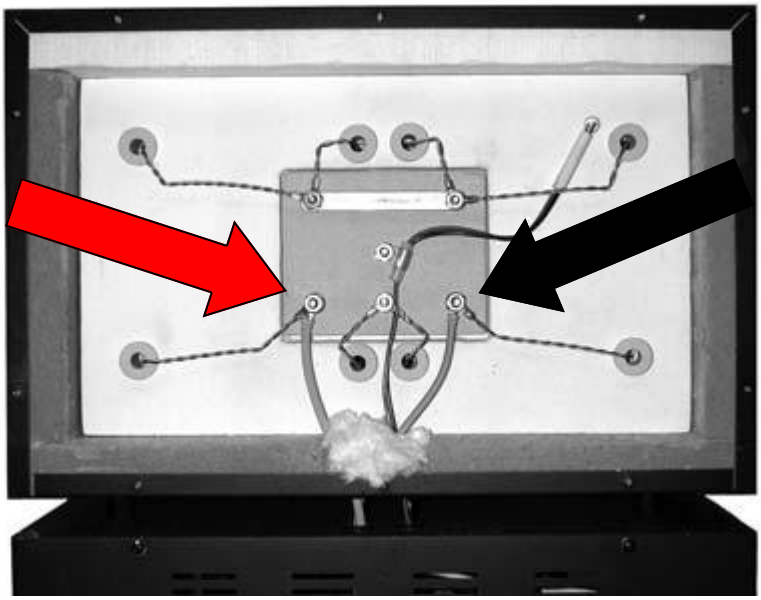
FAILURE TO HEED THIS WARNING COULD RESULT IN PERSONAL INJURY OR DEATH!

First visually inspect the heating coils on the sides of the furnace chamber.

- Are there any breaks in the coils? If so that heater plate will have to be replaced.

If there are no breaks in the coils then the muffle resistance and continuity will have to be checked next.

- Remove the screws holding the upper rear cover and place the panel aside.
- Using a volt-ohm meter check the resistance (Ω) by placing the leads on the terminals where the heater wires from the lower body connect to the heater plate wires. Shown below:



NOTE: Your furnace may have a different configuration, however the points are the same

NEXT PAGE

Certain models will have different resistance values. Compare your unit to the table below. The resistance should fall in between the two values given.

MODEL	Ω
Infinity Medium 115 Volt	11.9 - 12.6
Infinity Medium 230 Volt	40.1 - 42.6
Infinity Large 115 Volt	8.4 - 8.9
Infinity Large 230 Volt	6.7 - 7.2

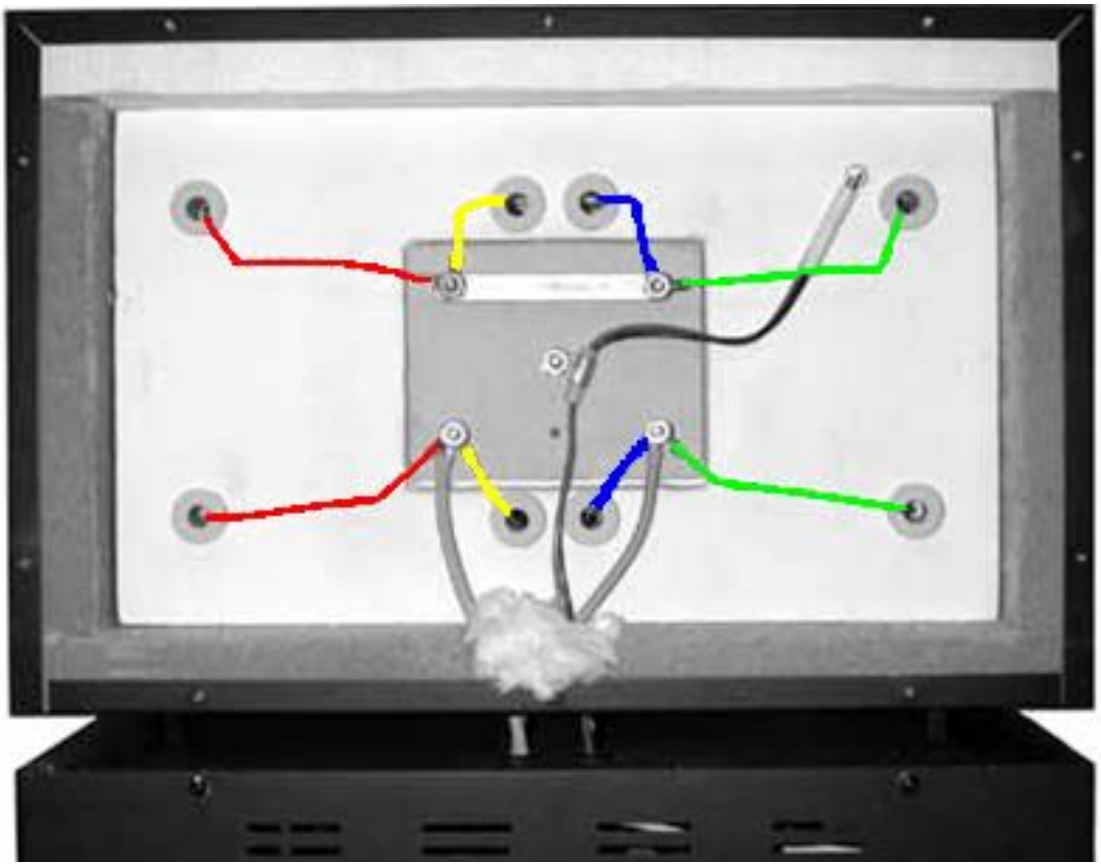
- If the meter reads open, then there is a break in the continuity of the heater wire circuit. The heater plate (s) will have to be replaced if there is an open or the resistance is too low or high.
- The Infinity Medium has two SIDE HEATER PLATES:
- The 115 volt is P/N: **33915** *(set of 2)*
- The 230 volt is P/N: **33916** *(set of 2)*
- The Infinity Large has two different sets of heater plates. To determine which one needs to be replaced CLICK HERE
- If the resistance is correct then the problem could be the TRIAC or the main board. Refer to the replacement parts list for Whip Mix part numbers.

A Infinity Large has a set of SIDE heater plates and a set of REAR heater plates.

To determine which set needs to be replaced the individual resistance of each plate will need to be measured. Follow these steps:

- Remove the nuts and washers that hold the heater wires to the terminals.
- Once all hardware has been removed, remove the heater wire from each terminal.
- Measure the resistance between each set of wires (i.e. red and red, green and green etc.) and compare the reading for each wire to the value on this CHART

Please note that your furnace may not have the same configuration



Infinity Large 115 Volt Unit

Color	Resistance Ω
Red	8.7
Yellow	8.7
Blue	8.7
Green	8.7

Red and Green are the SIDE HEATER PLATES P/N: **33918** *(set of 2)*

Yellow and Blue are the REAR HEATER PLATES P/N: **33917** *(set of 2)*

Infinity Large 230 Volt Unit

Color	Resistance Ω
Red	7
Yellow	7
Blue	7
Green	7

Red and Green are the SIDE HEATER PLATES P/N: **27957** *(set of 2)*

Yellow and Blue are the REAR HEATER PLATES P/N: **27956** *(set of 2)*

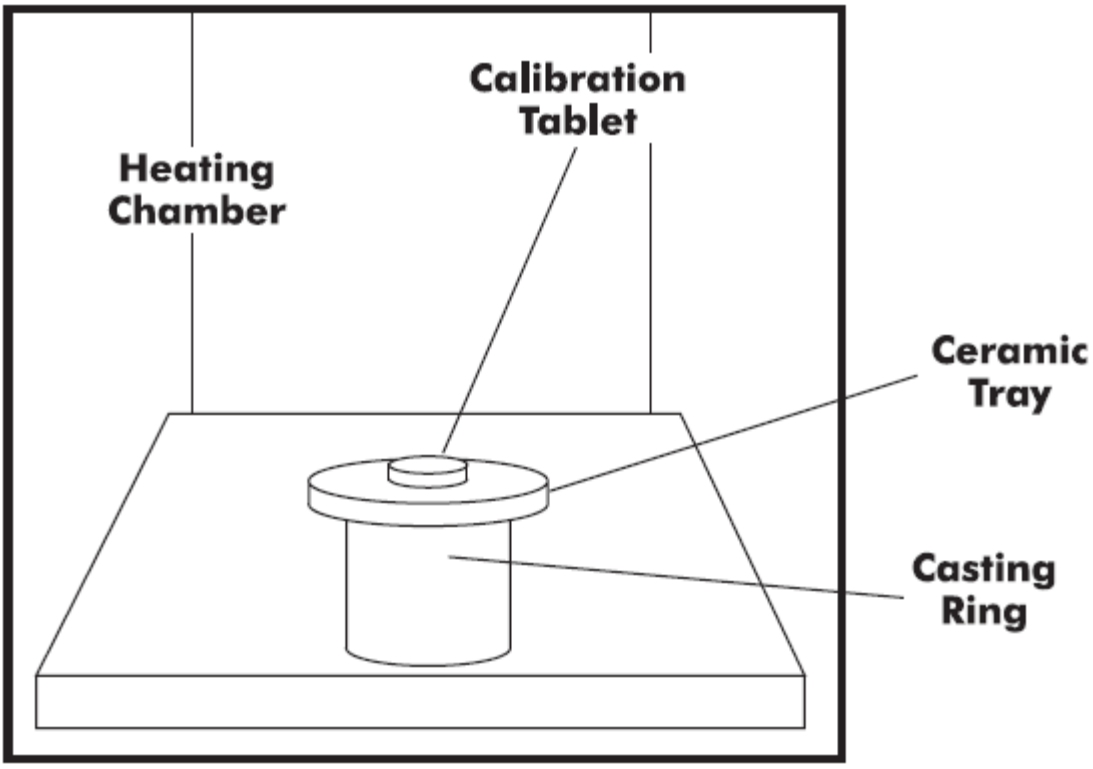
more reasons. one source

Temperature Calibration

Your furnace is factory calibrated. It is not necessary to re-calibrate on installation. If it becomes necessary to re-calibrate in the future, use the following procedure:

1 - Place a short metal casting ring *towards the front center* of the chamber.

2– Place a ceramic tray or small piece of casting ring lining material on top of the ring. Place one of the calibration tablets in the center of the tray.



NEXT PAGE

3 - Program the furnace as follows:

	HEAT RATE	TEMP	HOLD TIME
STAGE 1	FULL	1,200°F (649°C)	0:05
STAGE 2	25°F (14°F)	1,700°F (927°C)	0:00
STAGE 3	NO	—	—
STAGE 4	NO	—	—

4 - Close the furnace door and press START/STOP.

5 - When the furnace temperature attains 1,400°F (760°C) as indicated on the main display, open the furnace door slightly and begin to check for melting of the tablet. Continue to do this at each 25°F (14°C) interval, opening the door just enough to determine at a quick glance if the tablet has begun to liquefy at the edges.

6 - When the tablet begins to melt or liquefy at the edges, immediately press the UP ARROW and hold it. Then press ENTER/REVIEW. Three “beeps” sound and CAL will appear on the main display. Your furnace is now calibrated.

more reasons. one source

What type of issue are you having?

Power

Programming

Error

Temperature

Replacement Parts List

Replacement Instructions

more reasons. one source

P.D.Q. Programming

Main Display

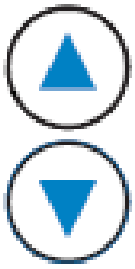
Button Descriptions

Enter Program

Review/Edit Program

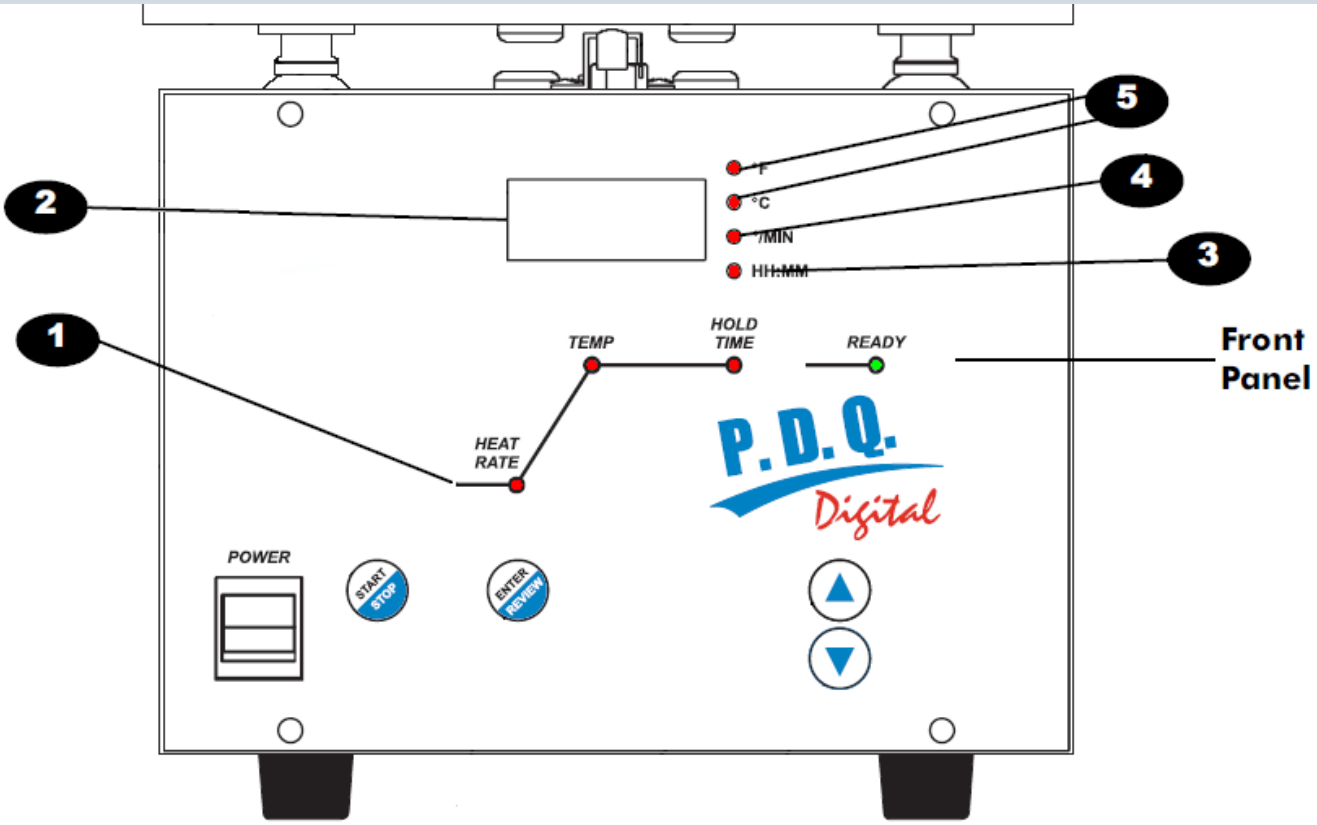
Starts or stops a program

When programming or reviewing a program in process, press to advance to the next parameter.



Increases or Decreases a number. The longer the button is pressed, the faster the numbers will change. Pressing these at the same time will switch between Fahrenheit and Celsius.

more reasons. one source



1 - PROGRAM STATUS GRAPH - Indicates status of the burnout process.

2 - MAIN DISPLAY - The 4 digit display indicates the chamber temperature. When programming or reviewing, indicates (time to completion), HEAT RATE, TEMP, and HOLD TIME.

3 - HH:MM - Indicates time. When flashing it indicates that a power failure has occurred.

4 - °/MIN - Identifies the heat rate

5 - °F and °C - Identifies the temperature scale

Programming and Operation

1 - Press ENTER/REVIEW and the HEAT RATE light will turn on. Use the ARROW KEYS to select the desired HEAT RATE from 1°F to 30°F/min (1°C to 17°C) or FULL for the maximum obtainable heat rate.

2 - Press ENTER/REVIEW and the TEMP light will turn on. Select the desired temperature up to the maximum of 2,012°F (1,100°C).

3 - Press ENTER/REVIEW and the HOLD TIME light will turn on. Select the needed time to hold at the programmed temperature up to 4 hours.

4 - All the necessary information for this program has now been entered. Press the START/STOP button to run the program immediately.

NOTE: If the unit sits for 7 seconds without a button being pushed it will revert back to idle mode. Press ENTER/REVIEW to return to the programming prompts.

Reviewing a Program

1 - Press ENTER/REVIEW and the programmed HEAT RATE will be displayed.

2 - Press ENTER/REVIEW again and the programmed TEMP will be displayed.

3 - Press ENTER/REVIEW again and the programmed HOLD TIME will be displayed in HH:MM.

Editing a Program

1 - Any individual parameter can be increased or decreased during the actual running of a program.

2 - To change a parameter while a program is running, press ENTER/REVIEW to advance to the desired parameter (i.e. TEMP or HOLD TIME). Initially, HEAT RATE will appear. Any parameter can be increased or decreased by using the UP or DOWN ARROWS.

3– Any program can be stopped or started by pressing the START/STOP button.

more reasons. one source

P.D.Q. Errors

Error List

Troubleshooting

Error List

Er 2 - **TABLET TEMPERATURE CALIBRATION ERROR** - Occurs when the temperature on the display is outside the allowable range at the time the user pressed the ENTER/REVIEW and UP ARROW buttons simultaneously to set the P.D.Q. calibration temperature to 1,500°F. If this occurs and is not an operator error, it indicates that there is a problem with the thermocouple or the main board. Press ENTER/REVIEW to turn the error indication off and continue with the program. Press START/STOP to end the program.

Er 3 - **ELECTRONICS MALFUNCTION** - Occurs when the main board hardware malfunctions.

Er 4 - **OPEN THERMOCOUPLE** - Occurs if the thermocouple is open or the connecting wire (s) are broken or disconnected from the terminal block on the main board.

Er 7 - **THERMAL RUNAWAY** - Occurs when the temperature has exceeded 2,015°F (1,1102°C) for 1 minute if the highest temperature programmed was less than 2,000°F (1,093°C). This also occurs when the temperature has exceeded 2,050°F (1,121°C) for 1 minute if the highest temperature programmed was 2,000°F (1,093°C) or higher.

NEXT PAGE

INVALID ENTRY ERROR WHILE A PROGRAM IS RUNNING

The unit will flash 99:99 when NIGHT TIME SET is pressed during a program if the HEAT RATE in STAGE 2, 3 or 4 is set to COOL but the corresponding TEMP is entered to heat to a higher temperature than the previous stage.

FLASHING HR:MM LIGHT - POWER FAILURE

If a power failure occurs, the P.D.Q. will memorize the conditions prior to the power loss. When the power returns, the furnace will return to the proper point in the program and the HR:MM light will be flashing indicating a power failure has occurred. It will continue to flash until START/STOP is pressed.

Error Troubleshooting

Error 2 - Calibration error. Either the user has calibrated the unit by pressing the UP ARROW and ENTER/REVIEW at the same time when the unit was not at the 1,500°F calibration range or there is a problem with the thermocouple or main board. If the calibration did not occur at 1,500°F then run the unit up to 1,500°F and use the calibration tablets to recalibrate the unit. If this is not the case, allow the unit to cool to ambient temperature. Once cool, verify the reading on the main display compared to the room ambient temperature. If there is a large variation then the thermocouple will need to be replaced. If not, the main board will need to be replaced.

Error 3 - Electronics malfunction. The main board will need to be replaced.

Error 4 - Open thermocouple. Turn the unit off and visually inspect that the thermocouple wires are connected to the main board. The red wire should be on the terminal labeled “+” and the black wire should be on the terminal marked “TB1”. If the wires are in the correct locations then inspect the rest of the thermocouple wire and the tip of the thermocouple in the furnace chamber for any breaks . If any breaks are found, replace the thermocouple.

NEXT PAGE

Error 7 - Thermal runaway. This can be caused by a bad thermocouple, main board or TRIAC. Inspect the thermocouple wires for any shorts. If no shorts are found CLICK HERE for heater plate troubleshooting. If the heater plates are in working order then the TRIAC or main board will need to be replaced.

INVALID ENTRY ERROR WHILE A PROGRAM IS RUNNING

The HEAT RATE in STAGE 2, 3 or 4 is set to COOL but the corresponding TEMP is entered to heat to a higher temperature than the previous stage. The HEAT RATE will have to be programmed to at least 1°F/min or the TEMP will have to be set lower than the previous stage.

FLASHING HR:MM LIGHT - POWER FAILURE

If a power failure occurs, the P.D.Q. will memorize the conditions prior to the power loss. When the power returns, the furnace will return to the proper point in the program and the HR:MM light will be flashing indicating a power failure has occurred. It will continue to flash until START/STOP is pressed.

more reasons. one source

Temperature Issues

No Heat

Calibration

more reasons. one source

Make sure the unit is TURNED OFF , UNPLUGGED and COOL TO THE TOUCH.

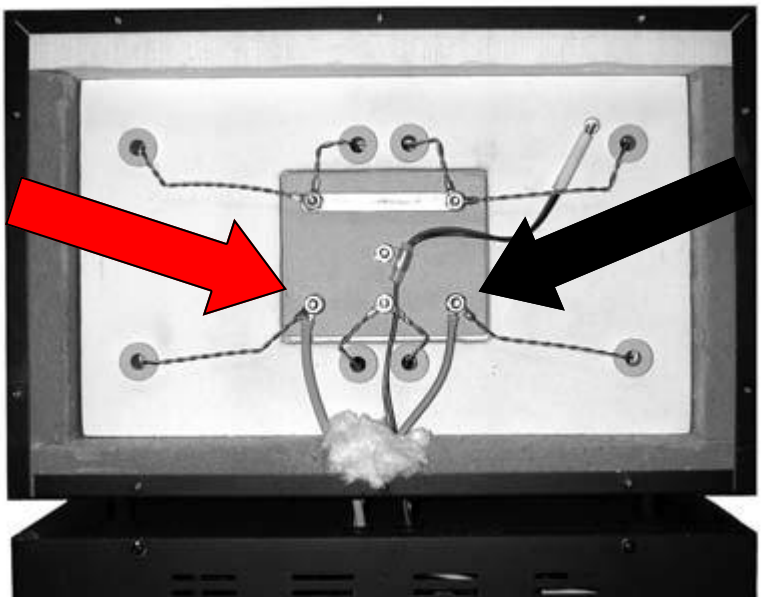
FAILURE TO HEED THIS WARNING COULD RESULT IN PERSONAL INJURY OR DEATH!

First visually inspect the heating coils on the sides of the furnace chamber.

- Are there any breaks in the coils? If so that heater plate will have to be replaced.

If there are no breaks in the coils then the muffle resistance and continuity will have to be checked next.

- Remove the screws holding the upper rear panel and place the panel aside.
- Using a volt-ohm meter check the resistance (Ω) by placing the leads on the terminals where the heater wires from the lower body connect to the heater plate wires. Shown below:



NOTE: Your furnace may have a different configuration, however the points are the same

NEXT PAGE

Certain models will have different resistance values. Compare your unit to the table below. The resistance should fall in between the two values given.

MODEL	Ω
P.D.Q. Medium 115 Volt	11.9 - 12.6
P.D.Q. Medium 230 Volt	40.1 - 42.6
P.D.Q. Large 115 Volt	8.4 - 8.9
P.D.Q. Large 230 Volt	6.7 - 7.2

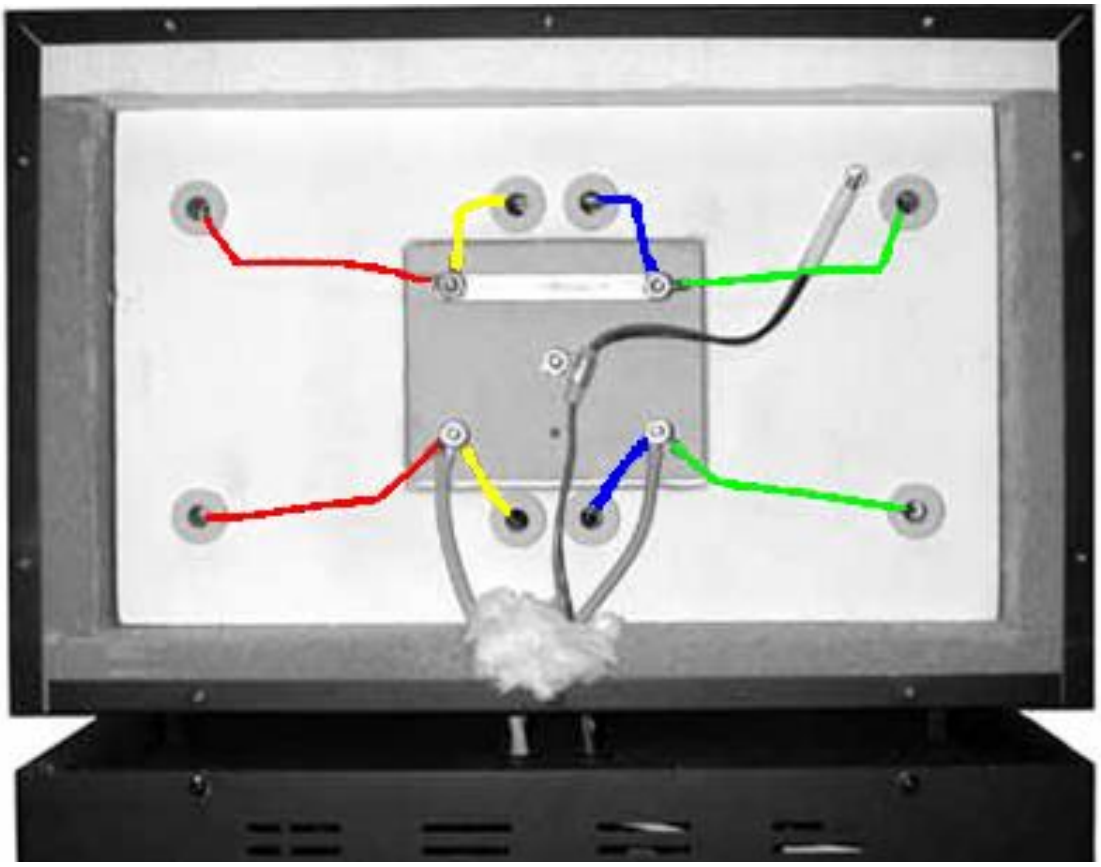
- If the meter reads open, then there is a break in the continuity of the heater wire circuit. The heater plate (s) will have to be replaced if there is an open or the resistance is too low or high.
- The P.D.Q. Medium has two SIDE HEATER PLATES:
- The 115 volt is P/N: **33915** *(set of 2)*
- The 230 volt is P/N: **33916** *(set of 2)*
- The P.D.Q. Large has two different sets of heater plates. To determine which one needs to be replaced CLICK HERE
- If the resistance is correct then the problem could be the TRIAC or the main board. Refer to the replacement parts list for Whip Mix part numbers.

A P.D.Q. Large has a set of SIDE heater plates and a set of REAR heater plates.

To determine which set needs to be replaced the individual resistance of each plate will need to be measured. Follow these steps:

- Remove the nuts and washers that hold the heater wires to the terminals.
- Once all hardware has been removed, remove the heater wire from each terminal.
- Measure the resistance between each set of wires (i.e. red and red, green and green etc.) and compare the reading for each wire to the value on this CHART

Please note that your furnace may not have the same wire configuration



P.D.Q. Large 115 Volt Unit

Color	Resistance Ω
Red	8.7
Yellow	8.7
Blue	8.7
Green	8.7

Red and Green are the SIDE HEATER PLATES P/N: **33918** *(set of 2)*

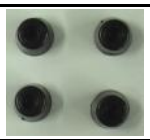
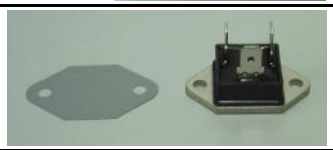
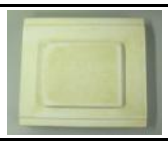
Yellow and Blue are the REAR HEATER PLATES P/N: **33917** *(set of 2)*

P.D.Q. Large 230 Volt Unit

Color	Resistance Ω
Red	7
Yellow	7
Blue	7
Green	7

Red and Green are the SIDE HEATER PLATES P/N: **27957** *(set of 2)*

Yellow and Blue are the REAR HEATER PLATES P/N: **27956** *(set of 2)*

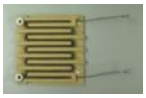
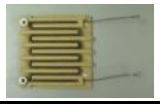
Part Number	Description
15275	DOOR INTERLOCK ASSEMBLY
15277	MOUNTING FEET PLASTIC - SET OF 4 
15279	HANDLE DOOR KIT MEDIUM
15284	DOOR ASSEMBLY MEDIUM
15286	DOOR ASSEMBLY LARGE
15291	CALIBRATION TABLE KIT 1500°F (816°C)
15292	CERAMINC FRONT SECTION - SET OF 2 MEDIUM
15293	CERAMIC FRONT SECTION - SET OF 2 LARGE
15475	TRIAC REPLACEMENT KIT 115V/230V 
15684	ON/OFF POWER SWTICH 115V & 230V
15712	DOOR INSULATION LARGE
15722	DOOR INSULATION MEDIUM 
15729	VENT TUBE

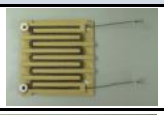
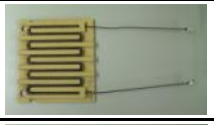
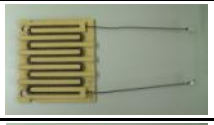
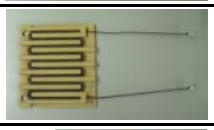
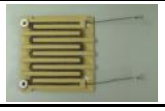
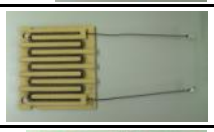
NEXT PAGE

Part Number	Description
18913	THERMOCOUPLE ASSY KIT
23202	POWER CORD KIT - ENGLAND 230V
23203	POWER CORD KIT - EUROPE 230V
23205	POWER CORD KIT - ITALY 230V
23206	POWER CORD KIT - AUSTRALIA 230V
26202	POWER CORD KIT - US 115V 15 AMP
33130	HEATER JUMPER
33210	REAR INSULATION PANEL W/ BLOCK MEDIUM
33256	TRAY FOR HEATING CHAMBER
33710	REAR INSULATING PANEL W/ BLOCK LARGE
33902	TEMPIL PELLET KIT - PKG 5 1300°F (704°C)
33935	REAR CERAMIC TERMINAL BLOCK W/TERMINALS MEDIUM
33936	REAR CERAMIC TERMINAL BLOCK W/TERMINALS LARGE
33955	UPPER REAR PANEL KIT MEDIUM
339560	UPPER REAR PANEL KIT LARGE
33958	CERAMIC INSULATING BUSHINGS - SET OF 4

NEXT PAGE

Part Number	Description
339750	HEATER POWER LEADS - SET OF 2
33980	FLOOR PLATE W/ FILLER STRIP INSULATION MEDIUM
33981	FLOOR PLATE W/ FILLER STRIP INSULATION LARGE
33997	DOOR HOOK SPRING ASSY KIT
33998	DOOR HINGE KIT - SET OF 2
117046	CIRCUIT BREAKER - 115V 16 AMP
117047	CIRCUIT BREAKER - 230V 10 AMP
117387	TERMINAL BLOCK - REAR PANEL

Part Number	Description
27956	HEATING PLATE ASSY REAR - SET OF 2 230V LARGE 
27957	HEATING PLATE ASSY SIDE - SET OF 2 230V LARGE
33915	SIDE HEATING PLATE ASSY - SET OF 2 115V MEDIUM
33916	SIDE HEATING PLATE ASSY - SET OF 2 230V MEDIUM
33917	HEATING PLATE ASSY REAR - SET OF 2 115V LARGE 
33918	HEATING PLATE ASSY SIDE - SET OF 2 115V LARGE
33921	PCB REPLACEMENT, P.D.Q. DIGITAL 115V MEDIUM
33931	PCB REPLACEMENT, P.D.Q. DIGITAL 230V MEDIUM
33951	PCB REPLACEMENT, P.D.Q. DIGITAL 115V LARGE
33961	PCB REPLACEMENT, P.D.Q. DIGITAL 230V LARGE

Part Number	Description
27956	HEATING PLATE ASSY REAR - SET OF 2 230V LARGE 
27957	HEATING PLATE ASSY SIDE - SET OF 2 230V LARGE 
33915	SIDE HEATING PLATE ASSY - SET OF 2 115V MEDIUM 
33916	SIDE HEATING PLATE ASSY - SET OF 2 230V MEDIUM 
33917	HEATING PLATE ASSY REAR - SET OF 2 115V LARGE 
33918	HEATING PLATE ASSY SIDE - SET OF 2 115V LARGE 
15500-041	PCB REPLACEMENT, INFINITY 115V MEDIUM
15500-053	PCB REPLACEMENT, INFINITY 230V MEDIUM
15500-541	PCB REPLACEMENT, INFINITY 115V LARGE
15500-553	PCB REPLACEMENT, INFINITY 230V LARGE